AMERICAN BEE JOURNAL

AUGUST 1912

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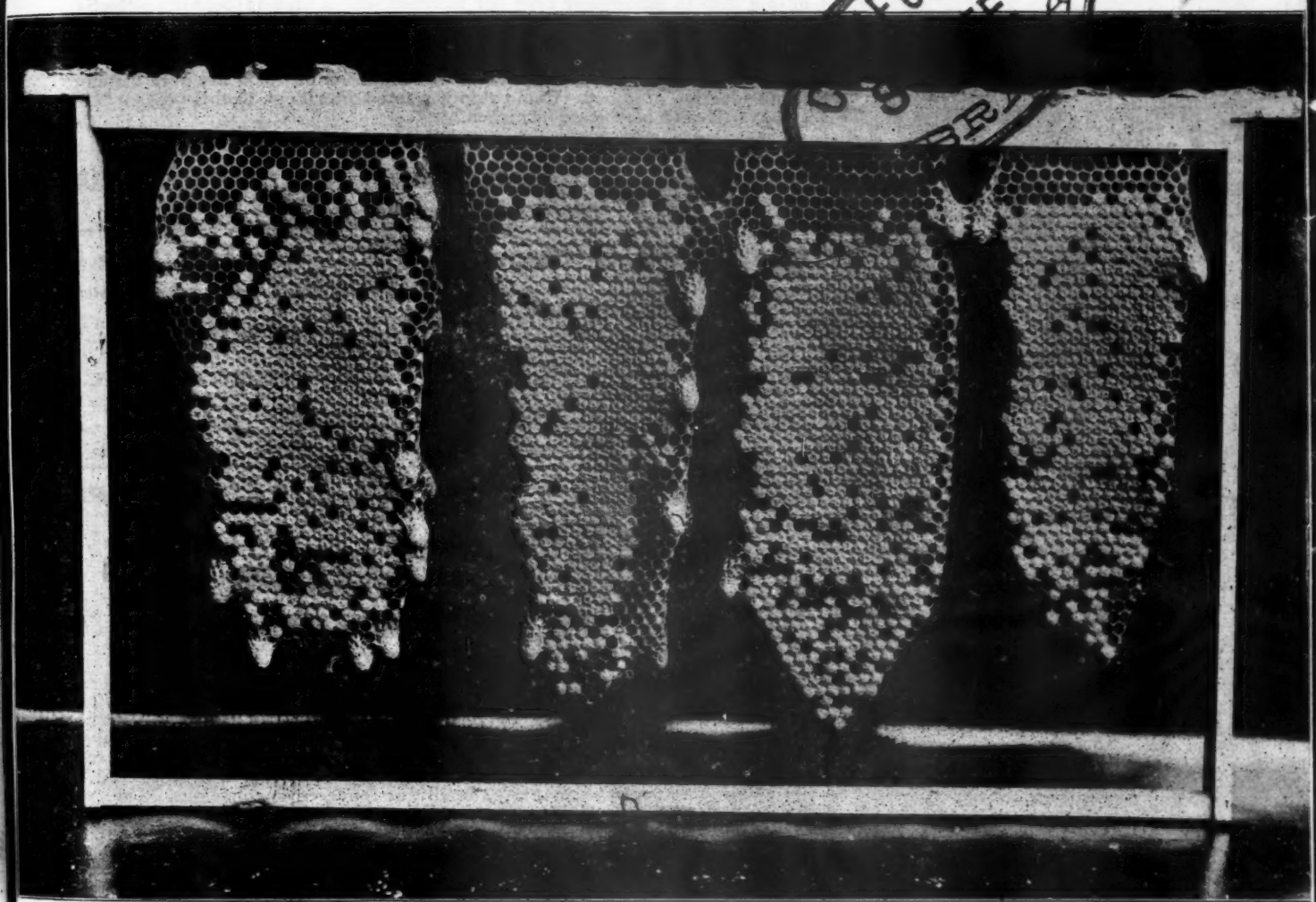

An Improved Method of Rearing Queen-Cells for Home-Apiary Use

The above illustration exemplifies the suggestion given by Dr. C. C. Miller, in the contributions on page 249 of this number. The article was written for the June number, but it was thought best to secure an illustration, hence the delay. The comb is made of three strips instead of two, and is in one of the large Dadant frames of the style used by the Editor.

Dr. Miller, who was 81 years **young** in June, is still showing what practice, experience and judgment can do for success.

American Bee Journal

AMERICAN BEE JOURNAL

PUBLISHED MONTHLY BY

George W. York & Company,

1st Nat'l Bank Bldg. Hamilton, Illinois

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(Organized 1870.)

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American Bee Journal, Hamilton, Illinois.

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American Bee Journal

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5 lbs. for 80c; 10 lbs. for $1.50; 25 lbs. for $3.50; 50 lbs. for $6.50; or 100 lbs. for $12.00.

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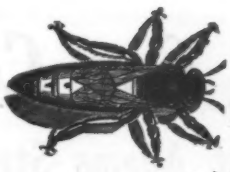
Untested Italian Queen-Bees



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Nemaha Co., Kan., July 15. A. W. SWAN.

GEORGE W. YORK & CO.:—After importing queens for 15 years you have sent me the best. She keeps 9 1-2 Langstroth frames fully occupied to date, and, although I kept the hive well contracted, to force them to swarm, they have never built a queen-cell, and will put up 100 pounds of honey if the flow lasts this week.
Ontario, Canada July 22. CHAS. MITCHELL

GEORGE W. YORK & CO.:—The queen I bought of you has proven a good one, and has given me some of the best colonies.
Washington Co., Va., July 22. N. P. OGLESBY.

GEORGE W. YORK & CO.:—The queen I received of you a few days ago came through O. K., and I want to say that she is a beauty. I immediately introduced her into a colony which had been queenless for 20 days. She was accepted by them, and has gone to work nicely. I am highly pleased with her and your promptness in filling my order. My father, who is an old bee keeper, pronounced her very fine. You will hear from me again when I am in need of something in the bee-line.
Marion Co., Ill., July 13. E. E. MCCOLM.

We usually begin mailing Queens in May, and continue thereafter on the plan of "first come first served." The price of one of our Untested Queens alone is 90 cents, or with the old American Bee Journal for one year—both for $1.60. Three Queens (without Journal) would be $2.50, or 6 for $4.50. Full instructions for introducing are sent with each Queen, being printed on the underside of the address-card on the mailing-cage. You cannot do better than to get one or more of our fine Standard-Bred Queens.

American Bee Journal, Hamilton, Illinois.

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AMERICAN BEE JOURNAL

(Entered as second-class matter at the Post-Office at Hamilton, Ill., under Act of March 3, 1879.)

Published Monthly at $1.00 a Year, by George W. York & Company, First National Bank Building

C. P. DADANT, Editor.
DR. C. C. MILLER, Associate Editor.

HAMILTON, ILL., AUGUST, 1912

Vol. LII---No. 8

EDITORIAL COMMENTS

European Foul Brood, Starved and Pickled Brood

Mr. France sent to the Editor in June a typical sample of what is now called pickled brood. The larvæ are almost black, about full grown, some sealed, and none in the first stages of growth. Concerning this he writes:

"The sample sent to you, from one of my out-apiaries, was taken from a hive which had at least 30 pounds of honey, some of it right over the pickled brood, but, like misers, they were too saving to uncap it to feed brood. I had 8 such colonies in a yard of 62. No unsealed honey in any of them. I scraped the cappings and gave each one a comb with plenty of unsealed honey, and in a few days the pickled brood was carried out. The sample sent you had some early stages, disease was quite general, about 40 percent of the brood being affected when I took sample. Now it is all gone. That colony is doing fine."

The two letters following suggest cures for European foul brood:

SAN FERNANDO, CALIF., June 18, 1912.

MR. EDITOR:—Here is my experience on European foul brood, of which I had sent a sample to Dr. Phillips for identification. The first thing I did was to make the colonies queenless, and in 3 days introduced young virgin queens. They came out all right. I took a queen away from a colony badly diseased and gave her to a queenless colony, then introduced a young Italian queen in the old colony and both came out all right. JOSEPH F. BALLAUER.

CHICAGO, ILL., June 12, 1912.

Here is a receipt for European foul brood: One ounce of betanaphthol dissolved in one pint of wood alcohol. Mix 1½ tablespoonsful to a gallon of feed; in 4 or 5 days all affected cells will have disappeared, if this mixture is fed for that length of time. I have used it on 30 hives; one-half of the brood was dead. When I looked at them again 3 weeks later, everything was clean and filled with brood. A. H. OPFER.

We hesitated about inserting this last letter, but upon enquiry from a high authority, we were informed that it is doubtful whether drugs have as yet been tried in the United States upon European foul brood. We all know that they fail ignominiously with the American variety. However, so many instances are on record of success with drugs in Europe, where they had not yet recognized the difference between the two diseases, that we think it well worth while to make enquiry. Will those of our readers who have made experiments give us the results, whether they are a success or a failure?

In a visit away from home the Editor was shown, by one of the deputy inspectors of Illinois, some combs from which the queen had been excluded 21 days or more for the cure of European foul brood. The bees had cleaned out all the cells but a dozen or so which contained a brownish, slimy substance somewhat resembling the American disease. This was passed upon by the Department as European foul brood. Those who saw the combs agreed that they would not be safe to breed in, and should be melted up.

Since Dr. Miller told us that his Italians had had the disease, the Editor saw an apiary of Italians with nearly every colony diseased. Evidently they are not immune, though they may overcome it better than other races.

We call the attention of the readers to the several letters on this subject in the contributions. Mr. Pyles' position makes it clear that he establishes a difference between pickled and starved brood. We want to hear more on this subject. But do not give anything as facts of which you have not made positive proof. Incorrect reports published do harm, for they lead the reader astray.

Immunity from Disease

The Canadian Bee Journal, in its June number, calls attention to the desirability of immune strains of bees. This is in reference to the Isle of Wight disease, but it also mentions the possibility of races immune to foul brood. Bertrand has already mentioned, in his small treatise on "Foul Brood and its Treatment," the possibility of having strains of bees which, from long combat against foul brood, might become immune from it. As the Canadians say, "It is Nature's own plan, and the most effective of all."

The Odor of Bees

Some writers in French magazines are going to great lengths to deny that each hive has a special odor. One writer, especially, after acknowledging that the odor of hives is plainly perceptible to our senses, holds that it is absurd to expect each hive in an apiary of 200 colonies, to have its own peculiar odor, distinguishable by the bees from that of any other colony. If we stop a minute to think of the wonderful scent organ of dogs, we will cease to doubt.

The dog not only recognizes his master's special odor among hundreds of people, but he follows his route for miles, with only the faint smell left by the imprint of his shoes. Yet we all wear shoes with surely a similar odor. The effluvia left by us are in some manner recognized by well-trained animals, and endure sometimes, on the ground which we have trod, for several hours. When we think of this, can we doubt that the wonderful smell organ of the bees may enable them to recognize each other. True, they do not rely on this alone, and often welcome strangers who come to them laden with provisions. So will your dog welcome a stranger who in some manner pleases him. Yet you would hardly say that his organs of smell are then at fault.

The fact that bees welcome a stranger who comes to them laden is very prettily compared, in the June "Apicoltore," to the behavior of human beings toward their own race in similar circumstances. They quote the Tuscan adage:

*"Porta aperta a chi porta.
Chi non porta parta."

(Open the door to him who brings.
Let him leave who does not bring.)

The loss of the queen by the bees, in a hive that contains tens of thousands,

[*Try reading it aloud, making all the a's sound like in "far," and the "chi" like "key," and trill the r's.]

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is quickly detected by them. They sometimes take notice of it within a very few minutes, and usually within two or three hours. Did you ever think how this takes place? Is it not quite probable that the queen has a peculiar and very perceptible scent (to the bees) which pervades the hive and which disappears more or less promptly after she has been removed? This is the most plausible explanation of the quick way in which they detect their loss.

Sweet Clover for Profit

Since the attention of the public has been drawn to the value of sweet clover by the Farmers' Bulletin No. 485, of the Department of Agriculture, which we mentioned in our previous issue (July), the matter has been taken up in a general way. Successful Farming for May contains an article by Mr. Frank Coverdale, of Delmar, Iowa, who appears to be an authority, for he is already quoted in the bulletin. A leaflet on "Sweet Clover and How to Grow It," is also published by the Bokhara Seed Company, of Falmouth, Ky.

The value of sweet clover as a stock food has been accidentally tested by the Editor during the past winter. Owing to the great drouth of 1911, hay was scarce, and a crop of mixed alfalfa, sweet clover and weeds was put up by us, although in an ordinary season we would have used this stuff to fill up ditches. We salted it very heavily and fed it to our two horses. At first they neglected the sweet clover, but after a few days they began to eat it, and were soon so fond of it that even most of the coarsest fibrous stems were eaten clean. This confirms the assertion made on page 8 of the United States Bulletin, that "stock often refuse to eat it at first on account of its bitter taste and strong odor, but when once induced to eat it, by sprinkling it with brine or by other means, they apparently relish it as much as any other forage."

It is very doubtful that sweet clover has proper credit for its ability to improve the soil on which it grows. According to the government bulletin this is one of its most valuable qualities. It accomplishes this by reason of its large roots which break up the lower layers of the soil and by their rapid decay add a great deal of humus to the layers which lie below the usual depths of plowing. In addition to this the stubbles and stems, when plowed under, also add a great deal of humus. But its most important characteristic is its ability, which it enjoys in common with other legumes, of fixing nitrogen by means of the nitrogen-gathering bacteria which live in the tubercles on the roots of the plant. This enables it to add much nitrogen, a most costly fertilizer, to the soil in which it grows. It has the great advantage that it will flourish on poor or hard soils, where other legumes would fail.

As an instance of its effect on land, it may be mentioned that in Alabama, on poor, run-down soil, it produced 6672 pounds of hay per acre the first year, and 7048 pounds the second year, after which the stubble was plowed under and planted to corn. The corn produced 22.7 bushels per acre as compared with 16.2 bushels per acre upon an adjoining plat where sweet clover had not been grown. That 40 percent increase of the crop was clearly due to the sweet clover as a renovator of the soil.

At the Ohio Experiment Station sweet clover increased the yield of corn 45 percent.

A French seed house, dealers in coarse seeds of field plants, wrote to the American Bee Journal Editor, during the past winter, enquiring as to whether there was any other use than seeding, for sweet-clover seed, in the United States, as they had just filled an order for 10,000 kilograms (22,000 pounds) of the yellow sweet-clover seed for a United States firm. It appears to be in growing demand for improving the arid lands of the Western States, as it takes root and grows with a minimum of rainfall.

Regarding the quantity of seed needed, the bulletin and the bokhara leaflet place it at about 20 to 30 pounds per acre of hulled seed. They also notice that much of the seed is slow to germinate on account of its hard seed-coat, which sometimes delays its growth for one year. The Editor has noticed that the seed which is sown promptly as soon as harvested, and not stored, is much more likely to germinate than that which is put away for future use. It is probable that its remaining exposed to the weather prevents it from hardening to such an extent as when stored away. If this proves correct, it will be found best for the producer who wishes to use his own seed, to sow it at once after harvesting it.

The white sweet clover is more desirable than the yellow annual, as the requirement of 2 years for its production of seed makes it more easy to eradicate when its destruction in cultivated spots is deemed necessary. Plants requiring 2 years for reproduction are never difficult to eradicate from tilled fields.

The Nationnl Dairy Magazine (Kimball's Dairy Farmer) is publishing a series of articles on sweet clover. They recommend it highly. See their July number.

Queen-Breeders and Foul Brood

At a meeting of the Washington State Bee-Keepers' Association, held in Wapato, Wash., May 25, 1912, a resolution was passed requesting the Post-Master General to make a ruling prohibiting any queen-breeders with foul brood in their yard, or among bees in their charge, from using the mails to send queen-bees. The resolution suggests that queen-breeders be required to furnish the local postmaster with a certificate from a properly authorized bee-inspector, stating that all the bees in their charge are free from foul brood, or, when no inspector is available, to furnish a copy of an oath before a notary or other authorized person testifying to the same fact; also, that the honey used in their mailing-cages is a product of their own apiary, and that they are not personally handling or bottling honey from other localities.

The above suggestion is good. No one wants to buy queens from a foul-broody yard. On the other hand, until we have inspectors paid by public funds in every State, it would be impossible to have every queen-breeders' apiary inspected. With patience and persistence we will sooner or later get a ruling that will make matters safe for the bee-keeping public, while treating the queen-breeders fairly. We have no doubt that Dr. Phillips is doing all he can to get this matter in proper shape. It is a vital question for the bee-keepers of the land.

Nosema Apis and Isle of Wight Disease

Nosema apis has been the subject of no little attention lately, and views concerning it vary greatly. Some German authorities count it a terrible scourge; others consider it of little account. Latest investigations point to it as connected with the Isle of Wight disease. Dr. Maassen, in the May Centralblatt, says he is convinced that Nosema is not identical with any known bee-disease. While hoping it may not soon be troublesome on this side of the water, we should keep a sharp eye on what is done abroad.

Supplement No. 8, of the Journal of the British Board of Agriculture, is a report on the Isle of Wight disease by five investigators, Dr. Graham-Smith and colleagues. It is exceedingly interesting. It identifies Nosema apis as present in this trouble, and makes evident the fact, already suspected by many, that this disease is variously known as constipation, vertigo, paralysis or May disease, in different parts of the world, from Maine to California, and Florida, in Germany, Italy, Austria, France, Switzerland, Australia, etc. But in very few instances has it been as damaging as it proved to the apiaries of the Isle of Wight and a few counties of England, where it was first noticed in serious amount in 1904.

Although the report mentions a few cases of the disease as appearing in the autumn, the bulk of the testimonials shows that it originates in the spring, during cool, damp, unfavorable weather. This corresponds with all the statements seen by us so far, no matter whence they come.

They say: "The summer of 1910 was wet and cold, and the disease was much in evidence, that of 1911 was fine and warm, and comparatively few cases were reported. With the return of wet weather the trouble has again shown up, and is now as bad as ever."

The most commonly recorded symptom is the presence of crawling bees, with distended abdomens and in very apparent misery, in front of the hive or upon the alighting-board. The term dysentery, when applied to this disease, is usually meant to describe the swollen condition of the bowels. The report quotes Beuhne, who establishes a plain difference between dysentery and paralysis. Dysentery, caused by bad winter food, is evidenced by the inability of the bees to retain an excess of unhealthy feces, which they discharge in the hive or at the entrance. As early as 1861, Samuel Wagner, the founder and first editor of the American Bee Journal, had already stated, Vol. I, page 131, that "the May sickness is not dysentery, but constipation," and ascribed it mainly to bad honey.

The report in question makes it

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clear that the disease is not confined to any one spot, but has existed all over the British Isles from time to time.

A very lengthy and scientific description is made of Nosema apis in its different stages, as the authors are of the opinion that this parasite is at the base of the trouble. They say that a fatal infection may be produced in a number of cases by feeding the spores to healthy bees. However, they acknowledge that some bees may be fed on honey containing thousands of spores of Nosema and yet be unaffected by them. They infer that some bees are naturally immune to disease from this parasite. This would explain why our investigators at Washington were unable to produce the disease by feeding the spores. It possibly requires special conditions.

It is further held in this pamphlet that Nosema has been endemic in parts of the country for many years. "Bees of a healthy apiary, in Scotland, which had always been free of disease, were found to be contaminated with Nosema spores in small numbers." The book also quotes the eminent German scientists who have made a study of the subject, and reports Maassen as saying that in Germany there are very few apiaries which are entirely free of Nosema, apparently even when there is no disease. But the same writer says that he has never found a case of dysentery without Nosema.

From all this what are we to conclude? That cold, wet, unfavorable weather, coupled with watery honey, may induce conditions favorable enough to the multiplication of this parasite to constitute an epidemic? That some colonies are more prone to suffer from it than others, on account of being less immune?

A portion of the pamphlet is devoted to a description of the different ways in which the disease may spread, by water, nectar, pollen; by robbing, by interchange of adult bees entering the wrong hive; through parasite-carriers or bees which are immune to disease, but yet carry spores; by swarms being located in hives which have contained disease, etc.

The immense amount of research shown is much to the credit of the writers. This work will form a basis for further researches, and we hope that soon some methods of prevention or cure will be given other than the isolation of the colonies.

A remedy was employed some years ago by O. O. Poppleton, of Florida, who sprinkled the bees and the combs with powdered sulphur. The sulphur kills all the diseased bees, and the sickness is said to disappear. The brood must be removed, as the sulphur would destroy all the unsealed larvæ.

The Italians reported a similar scourge, a few years ago, in the Province of Ancona. They called it by the old name of Mal di Maggio. The remedy there recommended, rather as a preventive than a cure, was the feeding of colonies with a strong tonic tea, made of a solution of lavender, ginger, rosemary, etc., mixed with honey heated to the proper degree.

In our experience, the disease has been very infrequent, confined to a few colonies in cold, wet springs. The bees have, in most cases, overcome it successfully without treatment, and we consider it more as an epidemic than a contagion.

Comb or Extracted Honey?

It is a common thing for a beginner to ask the question, "Which is more profitable to produce, comb or extracted boney?" Then the querist is disappointed because he does not promptly receive a positive answer one way or the other. The truth is that in the great majority of cases no one can answer the question in advance, and the bee-keeper must find out for himself. To be sure, there may be localities where the character of the honey does much toward answering the question. For instance, if there is a predominance of honey of dark color and strong flavor, then it is pretty safe to give extracted honey the preference.

Editor Pender gives this advice in the Australasian Bee-Keeper:

"Unless the honey-flow is good the comb built in the sections is of a starved appearance, not drawn out fully and evenly and unattached at the bottom, and probably partly at the sides. Unless the season is good and favorable for rapid comb building, the honey of a light color, and the colonies strong in bees—unless you have all these, my advice is, *don't attempt* to produce sections or you will be disappointed. The same quantity or crop of comb honey can not be taken as extracted. In an indifferent season I should place comb honey at about a quarter of an extracted honey crop, whereas in a very good season quite three-quarters of an extracted honey crop would be taken in section comb honey. So, before going into section honey-production largely, study your locality and the season you are likely to have."

Pretty sound advice, but not so easy to carry out in all cases. With a considerable number of colonies on hand, it is generally advisable to have the sections prepared early in the spring if not during the winter, when it is impossible to forecast the season. Indeed, it has happened in the experience of the writer that at the time supers were put on the hives prospects were favorable, and yet the season proved exceedingly poor.

If all the bee-keepers in a given locality are running for one kind or the other, it is a pretty safe thing for the beginner to follow their example until by experimenting on a small scale he may decide it advisable to follow a different course. Many factors have a bearing on the case, such as kind of market and distance from market. Moreover, producing section honey is a separate trade from producing extracted, and it may happen that on the very spot where one man does better with extracted another may do better with comb. The problem is one generally to be worked out by the beginner himself.

Crops and Prospects

We are in receipt of the crop report of the California State Bee-Keepers' Association. We quote their conclusions given after the condensed reports from the different States June 1:

The California crop will be much below normal, and, so far as I can figure it out, the same applies to the country as a whole. This being the case, there is no use in forcing the little early honey we have on the market which is not ready to buy. The eastern buyers want to be sure of what the conditions are before ordering; there is no settled price, and I strongly urge the producer to be as independent as the buyer for the present. There was no great quantity of honey held over, and I firmly believe these reports to be honest statements of the beemen themselves, whom we can trust to know the conditions better than any one else. Extracted orange honey is selling to the grocer at 7½ cents per pound. The old crop of comb is clearing up at various prices; no new honey is being offered, and no carload lots of any kind moving.

GEO. L. EMERSON,
Report Manager.

From their July report we judge that the prospect is unchanged, and that honey will be scarce. In Illinois, although the flowers have yielded fairly, especially basswood, the weak condition of the bees in spring, and the tendency to retrieve losses by increase of colonies are likely to cause a very light harvest of surplus. Very little white clover honey has been gathered.

MISCELLANEOUS NEWS ITEMS

Bees and Early Fertilization. — In Prakt. Wegweiser attention is called to the fact that although much is said about bees as important carriers of pollen, seldom is mention made of their being earlier than most other insects that fertilize plants. Take fruit-bloom, a bumble-bee may do as good work on apple-blossoms as a honey-bee. But at the time an apple tree is in blossom there are no bumble-bees to speak of—only the queen of each colony. If from each hive in an apiary, instead of several thousand workers, only the queen were to sally forth to visit the apple trees, there would no doubt be a failure of the apple crop. Beside fruit-trees, there are many other plants which bloom before the season is far advanced, and many other insects beside bumble-bees are found in plenty only after the season is well advanced. So if bees were no better than other blossom-fertilizers in other respects, the mere fact of their earliness makes them of so much marked value as to be well worth emphasizing.

Colorado Honey Grading Rules.—At the request of Mr. Frank Rauchfuss, Secretary of the Colorado Honey-Producers' Association, we herewith publish the new honey grading rules adopted last December by the Colorado State Bee-Keepers' Association. We call the producers' attention to the fact that they do not include in any of these grades sections that contain more than 50 uncapped cells altogether. A much better price would be secured for honey in sections, on all markets, if some such rule were followed by the major-

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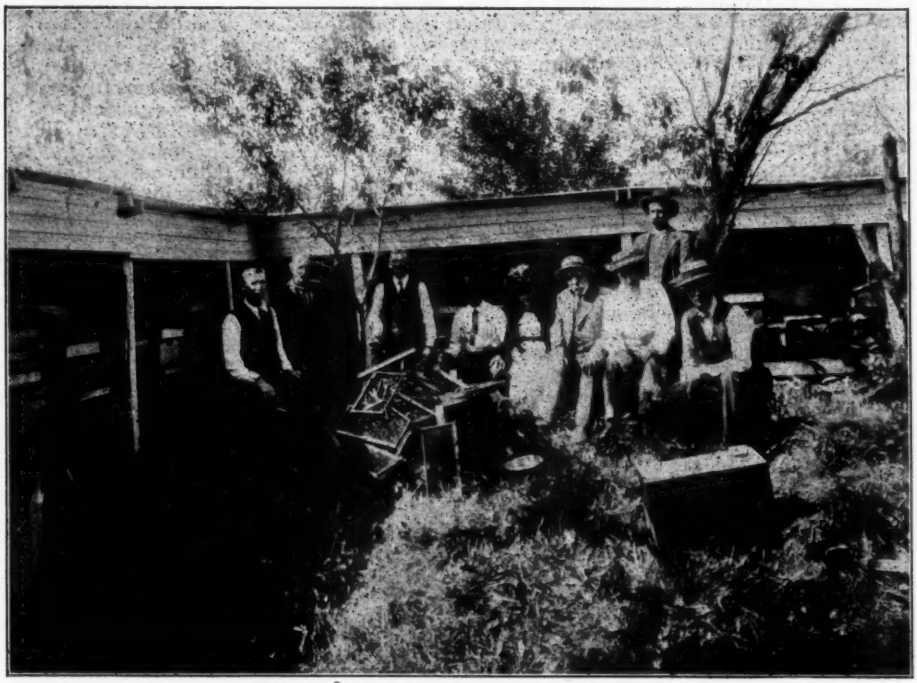

DISAPPOINTED, BUT NOT DISCOURAGED.
EASTERN ILLINOIS BEE-KEEPERS' FIELD MEET HELD AT WATSEKA, ILL., June 8th.

ity of bee-keepers. The sooner we come to uniform grading, the better it will be for our industry. Much in this direction ought to be achieved by the action of the National Bee-Keepers' Association. Following are the grades:

FANCY WHITE COMB HONEY.

Sections to be well filled, comb firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey, combs and cappings white and not projecting beyond wood. The wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.

Sections to be well filled, combs firmly attached on all sides and evenly capped except the outside row, next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Comb not projecting beyond the wood, and the wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.

Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb and cappings from white to amber, but not dark. Wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.

This grade is composed of sections that are entirely capped, except the row next to the wood, weighing from 10 to 12 ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells altogether, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY

Must be thoroughly ripened, and weigh 12 pounds per gallon. It must be well strained and packed in new cans. It is classed as white, light amber and amber.

STRAINED HONEY

Is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber and dark. It must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

Mr. F. Greiner's suggestion, in this number, of having the crates' weight alike, by sorting the sections, is worthy of consideration. However, we doubt whether this can be done when handling honey on a large scale. We would like to have Mr. Rauchfuss express his views on this matter. With his large experience in crating and shipping honey, he might give us some valuable points.

Eastern Illinois Field Meets.—The following letter received from St. Anne, Ill., gives a short summary of two field meets recently held in Eastern Illinois. The letter also shows to what extent such meets may be developed along the lines of most value to the average bee-keeper:

MR. EDITOR:—A good bee-paper is certainly a necessity to practical bee-keepers, especially since the severe loss that we have all had recently, showing our lack of knowledge in bee-keeping. I believe that bee-keepers are awakening to the fact that they have been neglectful, and will change for the better. It is fortunate for us here in Illinois that we have such men as Messrs. Kildow and Pyles, who are brimful of energy. They are at the head of a movement that the bee-keepers in general will appreciate. It will revive the bee-keeping industry wonderfully.

I am writing from the experience I have had recently, in two Field Days, one at Watseka and one at St. Anne. The meeting that was held in St. Anne June 22, was beneficial to all. A few came from a distance, including bee-keepers from Indiana.

A colony affected with foul brood had been reserved, and after Mr. Pyles had explained the different kinds of foul brood, the audience was given an opportunity to diagnose the disease. The answers were written on paper, and the majority pronounced it European foul brood, while it was the American. Brother Pyles then gave another explanation.

A colony of bees was "shooked" by Messrs. Kildow and Pyles, showing the people how quickly the work could be done, after which a photograph of those present was taken.

It is impossible to put in writing the benefit bee-keepers derive from meetings of this nature. One must be present to appreciate them, and I hope that, not only in Illinois, but all over the country, some efforts will be made to hold such meetings at different places among the bees; they bring results that count.

And now a few words of my experience in treating foul brood: Unfortunately I had the American in my yard. I wanted to get rid of it, and in the right way. I hit upon a plan of treating them at night. At dusk I took a colony into the cellar, turned on the electric light, and shook the bees in front of a new hive containing full sheets of foundation. It was a success. The moment the bees were in the cellar they seemed possessed of fear which made it very easy to control them. I attributed this fear to the sudden change of temperature from warm to damp and cool. They did not seem to think of filling themselves with honey, and in less than 5 minutes all were on the cold floor in front of the new hive. In they went as if driven by fire; strange, not more than a dozen bees flew to the electric light, which was only a few feet away.

These bees were then left in a dark room 48 hours. At sunset they were taken to their own stand and fed a quart of syrup in division-board feeders. Today they are doing well and working hard. All the brood was saved and put on another colony that was affected, and will soon be treated in a similar manner.

The treatment of foul brood is not difficult in the least, but it must be done right.

St. Anne, Ill., July 4. H. S. DUBY.

How Much Can a Bee Carry?—Alex Astor gives some interesting figures in l'Apiculteur. He carefully made a number of weighings, using 10 bees at a time for the sake of securing greater exactness. The average weight of each bee, when empty, was 7.4 centigrams. He gave them thin syrup, 1 part sugar to 3 parts water. Each bee carried from 6.5 to 7 centigrams. Then he fed honey that was very ripe and thick. Each bee carried from 7.4 to 8.4 centigrams. That shows that a bee will carry a heavier load of thick than of thin honey or nectar. One would naturally expect that. It also shows that a bee *can* carry about its own weight of nectar, and a little more than its own weight of honey. Well, cannot a man do the same? Would it be such a very great *stunt* for a man weighing 150 pounds to carry a weight of 150

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pounds? But if he were to attempt to carry such a weight for a distance of a mile at the same rate of speed at which a bee travels, he would drop exhausted long before reaching the end of the mile. Moreover, it is possible that a bee might carry a heavier load if its honey-sac would hold it. So it is likely that its own weight is not the full measure of its honey-sac.

Commissioner Cook and Horticulture in California.—The June number of "Orchard and Farm," published at San Francisco, contains an article concerning the work already done by our friend and co-worker of olden days, Prof. A. J. Cook. His work is also mentioned with praise in the July number of the Technical World. Prof. Cook is already causing a marked progress in his department. Although he is not without opponents in his present work, we feel sure that he will win out by showing his usual ability to make friends through the work he accomplishes.

COMMISSIONER COOK.

State Fair Exhibits and Premiums.—There is little doubt that exhibits made in public, at Fairs and otherwise, are the best advertisements for our products:

Minnesota is setting a very good example to the neighboring States in the matter of premiums. These aggregate the sum of $1062, divided into 40 different heads. In all but two cases, four different premiums are offered under each head. So there are 158 different awards in the apiary department, no single premium amounting to more than $15. Premiums on a "farmer's collection" are in a special class, and are limited to those residing 25 miles or more from either St. Paul or Minneapolis.

Mr. Scott LaMont, superintendent of this department, whose portrait we give in this number, sent the following circular letter to Minnesota bee-keepers:

There will be "Live Bee" demonstration work for about 4 hours each day, 2 hour in the forenoon and 2 hours in the afternoon. The services of competent demonstrators (a gentleman and a lady) have been secured, who will explain the every day work with which you come in contact in working and caring for an apiary, either large or small, and any questions you may have to ask will be gladly answered. This will be an excellent opportunity for a beginner, or any one wishing to take up the occupation of bee-keeping, to learn the art of handling bees.

We are anxious to make the Bee and Honey Exhibit the best and most attractive we have ever had. The outlook at the present time is favorable. The prospect for a honey crop is good. The State Fair Board has done its part, and now brother bee-keeper it is up to us to do our part and "make good." We are asking, yea, demanding of the Board of Regents of the State Agricultural College a department for apiary, with a competent bee-keeper and apiarian instructor at the head. There is no better place where we can demonstrate to them the need of such a department than in our State Fair exhibit. So, come to the Fair. Bring or send your exhibit of bees or honey, if possible; if not, come anyway and make the Bee and Honey building your headquarters. All bee-keepers on the ground are requested to meet every afternoon at 2 o'clock in the superintendent's office in the Bee and Honey building, to ask and answer questions that will be mutually helpful and instructive along the line of our beloved pursuit.

Premium lists are free. Write J. C. Simpson, Secretary, Hamline, Minn., for one, also entry blank. Do it now, and same will be forwarded to you as soon as they are ready.

MR. SCOTT LAMONT, OF MINNESOTA.

A Swarm-Hinderer.—Under this name is described in Prakt. Wegweiser a rim which, from the appearance of the illustration, may be 3 inches deep or deeper, having a series of slats in it, and this arrangement is put under the brood-chamber. It is practically the same as the bottom-rack used by Dr. Miller in his 2-inch deep bottom-boards, only in the latter the rim is not removed with the rack.

Recipe for Baking Apples.—When baking apples with the core removed, after baking them and while they are hot, fill the holes with honey instead of sugar. It gives them a delicious flavor. If you fill them with honey before baking, you will to a great extent spoil the flavor of the honey.

Remedy for Ants.—Jesse H. Roberts, of Watseka, Ill., uses powdered cinnamon slightly sprinkled over the boards to keep ants out of both the bee-hives and the cupboards. This is the best remedy of all.

The Ontario Agricultural College Apiarist, Mr. Morley Pettit, publishes a very complete condensed report concerning crop prospects. The July 11th sheet contains reports from 48 counties. 25 report fair prospect for clover honey, 4 fair to good, 13 poor to fair, and 6 poor.

The Annual Meeting of the Missouri State Bee-Keepers' Association will be held at the residence of Pres. J. W. Rouse, at Mexico, Mo., Aug. 1 and 2. All Missouri bee-keepers are urged to attend. J. F. DIEMER, *Sec.*

BEE-KEEPING FOR WOMEN

Conducted by MISS EMMA M. WILSON, Marengo, Ill.

Novice or Cowan Extractor?—The Best Glass Container to Use

A sister who is new in the business, and who does not expect to keep more than 2 or 3 colonies, asks whether the Novice or the Cowan honey-extractor is the better for her. With the Cowan, when the honey is thrown out of one side of the comb, a little push is given to the comb-basket, and the comb is reversed without being lifted out of the extractor, for the comb-basket swings like a door on its hinges. With the Novice the comb must be lifted out of the extractor to be reversed. This, of course, takes a little more time than it does to shove the comb around without lifting it out, making it well worth while to pay the additional price for the Cowan. But one extractor does just as good work as the other, and if one has no more than 3 or 4 colonies, the little difference in time is hardly worth considering, and the Novice has the preference.

Also, what is the simplest and best looking glass-container for extracted honey? As the Scotch say, that's a kittlish question. What suits one does not always suit another. In some places nothing is more popular than the Mason fruit-jar, because, when emptied of honey, it is just as good as new to be used for putting up fruit. The Premium fruit-jar is not so well known, but has the advantage that the honey in it is more *get-at-able*—quite an advantage when honey candies. Perhaps the simplest of all glass-containers is the tumbler with a tin cover. Honey in tumblers presents quite a pretty appearance, and tumblers may be had in pound and half-pound sizes.

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A variety of bottles may be had, and it is not easy to choose between them. When women get to do most of the honey-bottling, it may be that something will be evolved more pleasing to the eye than anything now on the market.

Sequel to "Man Put to Flight"

I have been very much interested in the "Bee-Keeping for Women" page in the Bee Journal, because my wife is the "bee-man" (?) of our family. About the only part I have in the enterprise is to buy the supplies, pay for bee-books and subscribe for journals on bee-culture; and then, when I become honey hungry, 'phone the grocer to send me up a few sections. I have equipped my wife with a smoker, a pair of gloves, veil, etc., and have important (?) business up town when a swarm is to be handled. They sting me in the quietest of times.

Up-to-date bee-culture in this immediate vicinity is comparatively a new enterprise, and now that my wife has the above-mentioned equipment, she is sought by the neighboring novices to handle perplexing problems. Brother W., who lives on one of our beautiful avenues, had an obstinate case to handle recently, and asked me one day if Mrs. Horne would not assist him. I informed him that she would be "dee-lighted" to render the service. The next afternoon 'phone No. 302 had a call, and Mrs. H. was asked to come over and assist in making a single nursery out of a double one he had in his garden.

Equipped with the aforesaid paraphanalia, and a proud walk, "our professor," (that is what we call her) betook herself to Bro. W.'s posthaste. Sister W. assisted in getting up the hive, tools, cloths, etc., and took her position where I usually do, behind the fig tree. Brother W. did not have any equipment except a pair of very sheer lady's hose on his hands. From the first the bees showed fight, but Bro. W. would not bear the idea of deserting and leaving a woman alone to manage the colony. Finally Mrs. H.'s persuasion, and a sting on top of his bald pate, sent him toward the house.

There were so many bees after him that Mrs. W. was afraid to let him in, but he slapped, fought and begged until she let him in just in time for him to fall on the couch in a faint. He fainted twice, and Mrs. W. became so alarmed she 'phoned for a physician. The bees got so mad they attacked a crowd of children at play out on the street, and one little girl, with a full head of hair, fairly alarmed the neighbors for a block away.

Brother W. is a sanctified Methodist brother, but some one heard him say he had a great mind to kill every bee in that hive, and get some bees of a more friendly and sensible kind.

Mrs. H. says she would not have gotten stung at all, but a puff of wind blew her veil against her nose, which had the appearance of a "Milwaukee" nose for two or three days.

How will this do for a sequel to the story, "Man Put to Flight," in the June number of the journal?

In the meantime I am content to hold my original job, *i. e.*, to furnish the implements, journals, etc., and attend to my town matters. We like the journal very much.

Respectfully, T. N. HORNE.

Never mind, Mr. Horne, some of these days instead of your 'phoning to the grocery the grocery will be 'phoning to your wife for honey.

The Joys of Bee-Keeping

Something must be a little wrong with the make-up of that bee-keeping sister who does not feel a thrill of delight upon reading the following beautiful pitcture from the pen of Miss Ethel Robson in the Canadian Bee Journal:

There is the first flight of the bees in the spring when you are able to form some estimate of how the bees have wintered and you know that wintering is one of the points in which bee-keepers take great pride; then the first peep into the hives, when, if the bees have wintered well, the sight sets the pulses throbbing with visions of a bounteous harvest; the bees waking from their long winter rest are active and alert, boiling up over the frames, and eager for the busy life so soon to begin, and which they will share for such a little time; there is the sight of fields yellow with dandelion, and orchards white with bloom. There are flashes of sunshine after rain, when the air is so full of the hum of bees as to be intoxicating; the joy of sitting quietly on a Sunday afternoon while the bees come tumbling in from the fields; but, best of all, there is the long succession of days spent in the open air with the sun, and the wind, and the bees for companions, when you are drawn close to the heart of Nature and made to partake of all her bountiful life—this is the great joy of bee-keeping.

How It Feels to be a Bee

In the Irish Bee Journal is an article by A. Beatrice Bambaut, who evidently has a lively imagination as well as the powers of observation. Here are two paragraphs from the article:

It is somewhat hard to realize that at this present moment one-third of the population of the world believes in the transmigration of souls—believes that before his present existence here on earth, man has already gone through a multitude of varied existences, and that if he does not make the most strenuous efforts, he will probably be obliged to go through a still larger number. They maintain that a being can transmigrate into any form whatever, and, according to his good or bad actions, he will pass to the highest or the lowest state. Of course, we always feel it to be extremely improbabie that our opinions are wrong, and other people's opinions right. But let us assume transmigration to be a fact, and that, to correct such faults as disloyalty or want of thoroughness in our work, or dirty or slovenly habits, we may awake some day and find ourselves to be neatly packed into the tiny body of a bee. How shall we like the change?

I imagine we shall feel quite delightful, for just consider the marvellous increase we shall find in our capabilities. Instead of 2 arms and 2 legs to have 6 legs, blessed with a "versatility otherwise unknown in the realm of legs." Instead of requiring a motor car, a flying machine, or a cab, to have wings on which at any moment we can fly where we will. Then look at the marvellous antennæ, the uses of which are not yet fully understood, but by which bees certainly smell, and which are believed to be the means by which their wants and desires can be communicated from one to the other. It is possible also that bees may possess senses or sensations of which our great coarse bodies can form no conception. By aid of the antennæ they may feel vibrations which never affect us.

Women to the Front in Africa

They are certainly to the front, literally, in the South African Bee-Keepers' Journal. In the May number the first page is occupied with a fine picture of Miss M. Dagmar Sillar, and the first article is on "Bee-Culture for Women," by Miss Mary W. Johnstone. One cannot doubt that Miss Johnstone speaks from experience when she says:

None but those who have handled full, fresh, "clean" sections of honey-comb can realize the pleasure that it gives the bee-keeper to see the first "taking" of each season. There is an exhilaration about handling honey-comb in sections, fresh from the hive, that surpasses anything in other pastimes, such as poultry-keeping, flower growing, etc. Even the first successful hatch of chickens in a new incubator cannot compare with it!

Bees Balling the Queen

Do you ever have trouble with your bees balling or killing the queen when she is returned after being handled?

When dropped on top of the frames she is likely to commence running all over, and the bees will be very apt to chase and ball her. Especially is this true if you have wide top-bars. Try this "kink:" Turn a frame of brood and bees flatwise and drop the queen among the bees. We have never had a queen killed or injured when returned in this way.

FAR WESTERN BEE-KEEPING

Conducted by WESLEY FOSTER, Boulder, Colo.

Is the Middleman's Profit Excessive?

In the June issue of the Bee Journal I note an article from Mr. Wesley Foster, of Boulder, Colo., "Honey—the Consumer's Dollar, and Who Gets It?" I have been on the distributive side of business for many years—being a retail lumber dealer—and have been able to make from less than nothing to a little over 6 percent per annum on capital invested, averaging about 3 percent. I think I am accounted as successful as the average in my line of business.

Now, take Mr. Foster's showing on 100 colonies of bees: $240 return on honey produced, and deducting $83 expenses, and allowing $100 for his labor ($1.83 per colony for all labor and expenses), it still leaves $57 for return on $600 investment, or 9½ percent. Compared with my lumber business that looks good.

I am also in the bee-business in an amateur way, having, last year, 20 colonies of bees; amount invested in the business $150. I got 750 pounds of comb honey, rated at 10 cents per pound, $75. My labor, expenses and supplies for these 20 colonies amounted to $1.50 per colony, or $30, leaving $45 for interest on an investment of $150, or 30 percent. Last year, with me in the bee-business, was better than the average, but I have kept bees for 8 years, and keep accurate books; the returns on the money invested are far ahead of the same invested in the retail lumber business.

Most producers and consumers want to eliminate—not the services of the middlemen and their capital—but *paying* for the same. If the people who are finding fault with the middlemen, were compelled to serve a 5-year period holding middlemen's jobs—somebody has to do the service, it cannot be eliminated—they would return to their original work much better satisfied with the returns on the labor and capital invested. G. W. FEHLEISEN.

Madrid, Iowa.

My contention is, that the producer is paying the middlemen too much for doing the distribution. The question is not so much whether the dealer, such as Mr. Fehleisen, is making 3 or 6 percent on his investment, as to how much of the ultimate consumer's dollar he is getting for the act of distribution. I know of several men in the retail business who are making less than nothing, but they are selling goods at 50 to 100 percent above cost. Our system is at fault, and the return to direct dealing, such as the parcels post will help to bring, will eliminate some of the waste in distribution.

The past winter I could have sold my extracted honey to dealers for 6 to

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7 cents per pound, but instead of doing this I advertised in local papers, and sold quite an amount direct to the consumers. The cost of advertising was about 5 percent of the sales, and I got 10 cents a pound for extracted honey. I did the middlemen's work for less than they could afford to do it.

At the present time, I am selling honey direct to a tea and coffee salesman who sells the honey as a side line on his route in an Eastern city. This honey nets me 11 cents for extracted, and in this deal I have eliminated all the middlemen but the last one, the re tailer. He sells for one dollar a 5-pound package of extracted honey that costs him 65 cents laid down at his station. I do not begrudge him the profit, but at the same time when I can deliver 5 or 10 pound pails of honey by parcels post direct to the consumer, and save the retailer's profit, I am going to do it and give the retailer of food products a chance to get into something that pays better. I would not trade places with many retailers that I know. They do not make a great deal of money, and their methods are too costly. We must have a more economical method of distribution.

It is hardly a just measure to figure the profits in bee-keeping by Mr. Fehleisen's method. I do not know how much salary he pays himself, nor how much money he has invested. I will say, though, that I would consider a man on rather uncertain ground who was not making as much from the capital invested as the prevailing rate of interest at the banks, and that rate is 8 percent in Mr. Fehleisen's State.

The book-keeper for a local lumber yard told me that $25,000 was the least amount that would be required to start a lumber yard, and Mr. Fehleisen has two yards. Most lumbermen that I know got their start in the lumber business. There is not a bee-keeper in the whole United States who has made as much money out of the business as is represented in any of the three lumber yards in our little town of Boulder. The homes and manner of living of the owners of these yards prove it.

At the present time native lumber can be bought at the sawmills in Colorado for $10 to $15 a thousand feet. It retails at from $25 to $30 a thousand feet. Several years ago we bought lumber of a sawmill and had it delivered in Boulder for $12 a thousand, when the retail price was $20. The sawmill man said he was selling it to us at the same price that the lumber dealers paid him.

The whole trouble is, that there are too many middlemen after the business, and in some lines there is scarcely anything in it for them. If we can cheapen the methods of distribution, who has any fault to find? If a dealer can furnish me with a product cheaper than I can get it by going after it myself, I am going to get it from the dealer. I can buy hay and grain of the farmers cheaper than from the feed dealers in Boulder, and I can sell honey to the consumer cheaper than he can buy it of the dealer and retailer.

Mr. Fehleisen figures that I can care for bees at the rate of $1.00 a colony per annum. It cannot be done and give a man fair pay for his time. It takes a good man to care for 500 colonies without help, and there are none that I know of that are doing it without some help. A man who can care for 500 colonies would earn only $500 a year, and $1000 a year is small enough if the children are to have any advantages, and the elders any respite. I should say that $2 to $3 a colony would be nearer what it is worth to care for bees.

I will admit that I wish to eliminate paying an excessive toll to the middlemen for selling me a hat, a pair of shoes, or a suit of clothes, but I will not succeed until co-operative effort has had a larger measure of success. I have eliminated the middleman in a few instances, and know that his profit feels good in my own pocket, and all that is necessary is to keep pushing on. The middleman will live freer when there are not too many of "him." There will always be the need of men to bring the things we want and take the things we don't want, but the faster we can eliminate the ones who are in the way, waiting for a chance to bring and carry, the better it will be for both producer and middleman. The producer must learn to co-operate before we can hope for any marked improvement. What I know of co-operation and direct dealing has seemed good, and so I am working to extend it farther. I hope that this will not be considered as kicking on the middleman.

Colonies Deserting Their Hives

The loss of bees in Montrose county was recorded some time ago. A recent trip has shown me some of the facts about this loss. Last season's crop was poor—less than one case of honey to the hive. The quality was below normal, also. The fall flow did not materialize, and too many old bees went into winter quarters. The poor quality of the honey caused it to granulate in the comb. A prolonged rainy season in October did not help the bees any. Most of the bees weathered through until March, though most were very weak. In March they began to die, and in June the bees were still deserting their hives, leaving brood, honey and pollen.

More pickled brood developed this spring than I ever saw. Many colonies were so weakened that they perished. Others had an abundance of brood compared with the number of bees to care for it. This was the most noticeable phase of the trouble. Absconding soon followed this symptom. Any light on the cause of this trouble, if what I have mentioned cannot be a sufficient cause, will be thankfully received. In some yards 25 percent of the bees were left in June; in others but very few.

The Montrose county bee-men are like others—they do not keep bees as well as they might. More equalizing of stores, capped and hatching brood would have cured this trouble very largely. Where the queens were poor, the colonies went sooner, but many with capable queens perished for lack of young bees and hope. Bees can stand only so much discouragement, the same as folks. The crop in Montrose county will be of small shipping importance this year. The larger producers are working for increase with the hope of filling their empty hives.

Fall feeding and removing the old honey would have prevented this loss very much. A watch of the queens, and seeing that the bees enter the winter with a fine force of youngsters, is a crying need of the bee-man's practice. We are not good enough bee-keepers. Our honey crops have been too easily secured. We do not know how to buck a stiff proposition.

Bees On Forest Reserves in California

The following is a line of work advocated by the California Bee-Keepers' Association, and it is hoped that the bee-men will find it profitable to lease these ranges for the pasturage of bees alone:

The committee on forest reserves, by its chairman, E. B. Shaffner, reported as follows:

1. That it be the sense of this committee that there are vast tracts of valuable bee-range on forest reserves that will produce annually more profit from honey-production than from any other industry, and that as such should be protected by the Government for this industry:

2. We recommend that apiaries be not located closer than 3 miles apart.

3. That 10 cents per colony is a reasonable charge for range location.

4. That the Government be requested to reserve roadways to apiaries through homestead entries.

5. That sheep and goats be excluded from such points of reserves as are set apart for bees.

6. That Government permit bee-keepers to remove wild bees from forest reserves where the same can be done without the destruction of timber of commercial value.

Tin Comb-Honey Package

Mr. Paul Hunten, of Somerset, has sent out to many prominent bee-keepers sample supers of his section-holders, and the new tin section and sanitary honey package. The inside of the tin sections are waxed to facilitate the secure fastening of the comb to the tin. One section in each super is left unwaxed to test whether the waxing is necessary. There is one thing about this package that is fine—it is attractive and clean. The section-tin packages are not on the market as yet, and are in process of test. The outcome will be interesting. Mr. Hunten has gone to considerable expense in getting the thing to going, and I hope he will succeed.

[If the new departure proves practical, a description of it will be given in the Bee Journal later.—EDITOR.]

Grading Honey

A bee-meeting in the West approximates a national political convention when the grading rules for honey are considered. It seems to bring out all the pronounced ideas a man has. Mr. Rauchfuss says that he can size a bee-keeper up quicker by inspecting his honey crop graded and packed for market than in any other way. You

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touch a real live issue when you talk honey grading.

Climates of the West

The West has as many different climates as could be imagined; in Wyoming and Montana the thermometer sinks down and down until the mercury can scarcely be found at times. Then down in New Mexico and Arizona, while it is not strictly tropical throughout the winter months, the climate is of a mild nature. In the valleys of the Inter-mountain region the winters, as a rule, are mild. Colorado is about on the line north and south where the single-walled hive can be considered sufficient protection during the winter. I do not know of a double-walled hive apiary in the State. Very few give their bees any protection whatever. This is a condition that will change in a few years, I am confident.

BEE-KEEPING IN DIXIE~

Conducted by J. J. WILDER, Cordele, Ga.

The Ravages of Thieves

The ravages of thieves are a very serious problem with me. They do considerable damage, such as throwing off covers, lifting out frames from the supers, and sometimes from the brood-chambers, and scattering them around the apiary. And if there is honey in the apiary, they never fail to find it. Many times they open the brood-nest and cut out the honey and almost completely destroy the bees. Very often a colony is carried a short distance and burned, hive and all. Many times thieves make fires in the apiary and much damage is done.

Two of my best out-apiaries have been completely destroyed by fire. One just before the honey-flow this spring, and one several years ago. The first one was robbed and burned by a plantation overseer and his negroes, who fired it by placing burning fat pine under the hives.

The last apiary was burned by the only son of a widow. He was in the habit of stealing honey for her, but this time the bees stung him badly, and to get revenge he placed a bunch of leaves and straw on each hive and fired them, and then took to his heels. Only the wire of the frames and the nails were left.

The ravages of thieves cause a loss to me each season of several hundred dollars, and are increasing. But all this damage does not discourage me in the least. I only work the harder to overcome it, with not a spark of hope for it to ever cease, as it has been going on for 15 years.

Apiary Work

This is the mid-point in the bee-keeping year, when we should both reflect and look forward. It may be that we have not been as successful with our bees as we should. May be we have made too many blunders which have stayed our progress; these we should overcome next season. But what a mistake we will make now if we don't look forward to our business for next season!

There is a greater or lesser flow of honey in every locality in Dixie, and our bees are still making progress. This will not continue a great while. If we wish to harvest a great crop of honey next season, now is the time to make the start.

THE VALUE OF GOOD COMBS.

The value of good worker-combs, built straight and even, in good frames, is far greater than the average bee-keeper thinks. Good combs, easy to manipulate, should be the pride of every bee-keeper, and nothing else should be tolerated. It is not enough to shake a swarm of bees into a hive-body, the frames of which contain only starters, for the bees may build some crooked combs, or combs containing more or less drone-comb. This is a step backwards, and such combs should be replaced with good ones.

Now is the best time to sort out such combs, remove the honey and render them into wax; wire the frames and put in full sheets of foundation, if there are no extra combs to put in their places. Insert these in the middle of the brood-nest of good, strong colonies, and they will build good serviceable combs at once. Weaker colonies should be supplied with good, ready-built combs from stronger ones. If any inferior combs contain brood they should be set in weak colonies next to the wall of the hives, until all the brood is hatched out, and if such combs contain unripe honey, it could be fed back to the bees at once, or left with the bees for a few days to ripen.

QUEEN-REARING.

Every bee-keeper should learn to rear his own queens from his best stock, or if he is not satisfied with his stock, buy a nucleus with a queen, or get a queen of good stock from a reliable breeder and introduce her into one of his colonies. From this colony combs containing eggs or brood less than 3 days old can be taken and given to colonies made queenless and broodless. They will build many cells which can be removed in 9 days from the time the brood is given and placed in cell-protectors to requeen a number of colonies which have inferior queens. These queens can be found and killed at the time the cells are given.

At this time of the year conditions are ideal for queen-rearing in most localities, and it is by far the best time to do the work. It is important. Your success depends upon this step.

INCREASE.

No bee-keeper can obtain success without resorting to artificial increase. Even in the spring of the year, when bees have a great inclination to swarm and do according to Nature's plan, it is better, if intelligently done by man, but at this season of the year there is little inclination among bees to swarm, and if increase is made it must be done artificially. This is not advisable unless colonies are strong and heavy with stores, and even then each colony should be divided but once, so each division will go into winter quarters with plenty of stores and a medium-sized cluster of bees.

If there is only a light honey-flow the increase should be made soon. If there is a heavy honey-flow wait until near the close, then follow my method as outlined in the July number of the American Bee Journal, page 205. If the plan is carried out carefully a good increase can be made at each apiary, that will result in a large amount of surplus honey next spring.

LOOKING TO THE FINAL END.

As we make our last round in removing honey, we should keep in mind the wintering of our bees. Frames of sealed brood from the strongest colonies should be given the weak ones from time to time, and some frames of honey should be given the colonies light with stores. Plenty of honey should be left in the apiary to winter on.

Sketch of Life of Pioneer Bee-Keepers—Help to Beginners

DEAR DIXIE BEE-KEEPERS:—To conduct our department in such manner that it will be most helpful to most of us, is by no means a small task for me.

I have often been asked some such questions as the following: "How many colonies should I have before I can expect sufficient returns from them to support myself and family?" and, "How much shall I have invested in the business up to this point?" This can best be answered by those who have followed the bee-business for years, and solely depended upon it for a support.

To this end we wish to produce short sketches of the lives of such veteran bee-keepers, and at the same time produce their photographs so we can take a look in their faces as we read what they have done, and get a lesson from their experience. The photograph of Mr. T. W. Livingston, of Leslie, Ga., appears herewith. He writes:

"Of course, I had to be born, and they say this occurred in Washington Co., N. Y., Feb. 29, 1852. But I began my bee-keeping career in Washington Co., Iowa, near where the city of Ainsworth now stands. At the age of 15, a friend gave me 3 colonies of bees in Underhill hives, and as there was no bee-literature obtainable (so far as I knew), I remained in helpless ignorance until I was 20, when I heard that colonies could be divided and each part made into a normal colony.

"This started me to building 'air-

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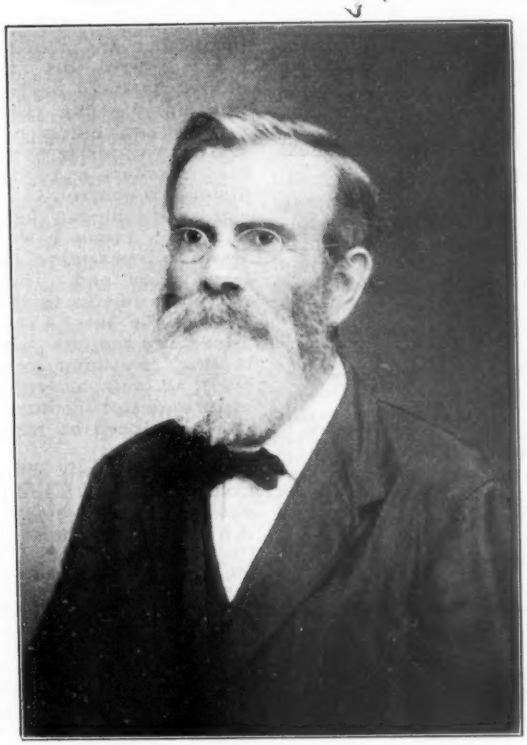

MR. T. W. LIVINGSTON, LESLIE, GA.

castles' for a great bee-business. It was just the thing, as my bees would not swarm for me. I divided them to my heart's content. It was a great lesson, for the next spring I did not have a live bee.

"But, in the meantime, a few copies of the National Agriculturist and Bee Journal were sent me, and I discovered good bee-literature, and soon read up and began making substantial progress, bought more bees, made a honey-extractor, bought an Italian queen, and soon was the most extensive bee-keeper in that section.

"In 1888 I moved South for my health, and brought my bees with me. Many times I was handicapped, for I met new conditions and some perplexing problems. Coming as they did at this critical time of my life, I did not make as great success as I might otherwise have made.

"The number of my colonies has never exceeded 230 in a single season, located in from 1 to 3 apiaries. I use the regular 10-frame Langstroth hives, and run solely for extracted honey. I tried the production of comb honey in 1-pound sections, but found that the production of extracted honey was far more profitable.

"I have a natural inclination or talent for mechanical work, and I have made my own supplies with a small hand-power machine. Looking back over my work, however, and the unsatisfactory result of using home-made supplies, I would not advise this step. I have never turned my efforts in any direction save bee-keeping. It has been my source of income, and I have raised a family and educated my children. As I look back down the long chain of years of my bee-keeping life, and compare the opportunities with those in other lines, I do not think I could have done better, taking my small amount of capital in consideration.

"The two greatest mistakes I made were the partial adoption of the divisible brood-chamber and the production of section-honey. These might not have been mistakes had I been in a different location. My bees have never been neglected except in cases of sickness, and I have reared all my queens except a few bought for the sake of better stock. Back in my early bee-keeping days, long before I had ever seen a honey-extractor, I made a small one which I used until I saw a Peabody honey-extractor with combs, can and all revolving. Then I made one which permitted only the baskets to revolve. I used this until I made my last model, illustrated in the American Bee Journal of March, 1909, which I think is a little ahead of anything yet invented for this purpose."

CANADIAN BEEDOM

Conducted by J. L. BYER, Mt. Joy, Ontario.

Northern Ontario as a Bee-Country

A friend in New York State sends me the following:

Please answer the following through the American Bee Journal: How is the country 100 miles north of Toronto, Ont., for bee-keeping? Is the spring late and cold, or does it come with a rush? What have they for bee-pasture, clover or basswood, or both?

Does it cost more to winter bees in a mild climate like that of North Carolina than in Canada, where they are frozen up nine months of the year? I read your article on North Carolina, and am very much interested in that State. But honey from North Carolina brings only 55 to 65 cents in New York city, while honey from Maryland, Pennsylvania or New York brings 90 cents to $1.25. In a warm climate like the Carolinas, the people do not eat honey as in our cold, northern States. Their prices run 12 to 13 cents a pound for comb honey.

As a general rule, the spring season is about 10 days later than at Toronto, but that makes little difference as the honey-plants last just as long as further south, even if a little later in starting. The spring differs very much in different seasons, sometimes coming on with steady warm weather, while at other times it is quite cool all through early May, and *this* year even into June. But from reports received from New York, as well as from other parts of the United States, I surmise that the cool weather was not confined to Ontario, where we "are frozen up nine months of the year."

By the way, I warn you not to think of coming to Ontario, if you have such an opinion of the climate. The worst I ever heard of before in relation to our climatic conditions, was that we have "six months of winter and six months of cold weather," but "nine months frozen"—well, that is "the limit!" I wish you were here at present; you would come to the conclusion that we have at least *warm* weather in July.

As a matter of fact, while our climate is severe in winter, yet northeastern New York can beat us when it comes to registering a low temperature in the winter months. In the locality north of Toronto referred to, we have basswood and clover with some raspberry. This combination can be had in many parts of Ontario not so far north, and 300 miles north of Toronto is as fine a bee-keeping territory as there is in America.

In my estimation, during the next ten years, hundreds of colonies will be located up there in the clover, willow-herb, etc. If a bit younger and alone, that is certainly the place I would tackle, for I regard our northern country as the great honey-producing section of the near future.

As to North Carolina, I know nothing about the country except what my father has told me, and since he has come back a few bee-keepers in that State have written to me. In addition to poplar, sourwood, and other honey-bearing trees natural to that country just where father spent the winter, they have lots of basswood in the mountains.

While I suppose that in warm coun-

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tries more honey is consumed by the bees than in the north, yet they gather it earlier in the season, so that it really makes but little difference. As to bee-locations, if any one is contemplating moving to another section he should, by all means, go and visit the locality first. Don't depend upon somebody else's judgment, for what may suit one person may not suit another.

So far as Ontario goes, I know much of the country well, but while willing to give general information, I would not think of directing any one to any particular spot. A few years ago I directed a friend, who was living in a poor section, to a place where I knew there was an abundance of alsike, and very few bees to gather the honey it secreted. While no one was crowded by his moving there, it leaked out that I had directed him there, and a few men were pretty "sore on me" for it.

There is lots of room in almost all sections of the continent, I suppose, and if one wants a location, the best way is to look it up and judge of the conditions before moving.

Slow Yield from Clover—Basswood Just Beginning

At this date we are having a rather slow yield from the clover, although last week the flow was good in most sections. Where bees were strong enough to take advantage of the flow, a fair surplus was obtained, even if there is but little clover in the country.

Unfortunately in many apiaries the bees lost their field forces during the long, cool spell between fruit-bloom and clover, and no matter how good the flow would have been, little surplus would have been gathered. Basswood looks good wherever there is any, and in another week it will open. Personally, we do not look for a big crop, but already more is secured than was looked for, so we are not complaining.

SOUTHERN BEEDOM~

Conducted by LOUIS H. SCHOLL, New Braunfels, Tex.

Swarm Prevention

While the amateur looks upon natural swarming with delight, so he may count his hives in greater numbers, and it seems to him the only way of increasing his bees, the experienced bee-keeper regards natural swarming as a nuisance, and especially if his colonies run up into the hundreds, scattered in several apiaries. It requires a good deal of watchfulness and much hard labor on his part during the swarming season, as excessive swarming may not only cause a loss of bees, but a greater loss in the honey crop on account of the weakened forces to gather it.

Swarming is, however, no longer feared as it used to be, and although it may always be a hindrance in keeping a large number of apiaries, and in the production of the greatest amount of honey, it can be regulated and controlled so that bee-keeping is profitable. Many methods are employed for swarm prevention.

One of the chief requisites is a large hive so manipulated that the bees may be kept at work contented. A cramped brood-nest, in which the egg-laying room of the queen is restricted, the otherwise crowded condition, and the lack of storing room and improper ventilation of the hive, are all factors to produce the "swarming fever." By looking after these details properly, it can be held in check to a marked degree.

Ventilation can be given by increasing the size of the entrance, simply placing a small stone or piece of wood under the front of the hive after it has been raised up by inserting the hive-tool into the entrance and lifting the hive. This will also give the bees a better passage-way in and out during the working season. Shading the hive will also aid in cooling it.

Swarming can be delayed in many instances, and often entirely discouraged, by destroying the queen-cells every 9 or 10 days, but this must be done carefully, and not a single cell overlooked. These precautions only help to allay the swarming desire. Once they are determined, it is a difficult matter to prevent it. The only proper remedy then is to satisfy their desires, not by allowing them to swarm according to their will, but by doing it for them.

The most successful plan is "the brushed or shaken swarm," and one that can be modified to suit local and particular conditions. Briefly, colonies that are found preparing to swarm, and with queen-cells in the hives, are treated by shaking nearly all the bees off their combs as they are removed from the hive and placed in any empty hive, which is then set in a new place. They are given a caged queen, or the remaining bees allowed to rear a queen from several cells left on a comb that has not been shaken, and the inmates destroyed by the jar. There should be enough bees to properly protect and care for the brood, especially during cool temperature. The combs removed are replaced in the old hive by frames filled with full sheets of comb foundation. The change has the same effect upon the bees as if they had swarmed naturally. They behave exactly like a swarm, and no colony of bees works with greater vim and vigor.

This treatment results in an increase in the number of colonies, but if this is not desired, the number can easily be reduced after the swarming season by reuniting as many colonies as desired. It is not necessary to treat each colony in the apiary as described. Only those that are actually preparing to swarm receive this treatment, and the number is small if the proper precautions for keeping the colonies comfortable and contented are taken. Some seasons the desire to swarm is greater than in others, and consequently more difficult to control.

If swarming can be kept in check until the honey-flow begins here in Texas, all swarming preparations will come to an end. That a honey-flow will put a quietus to the swarming desires of the bees is recognized among Texas bee-keepers. Instead of continuing swarming preparations they divert all their activities toward gathering and storing honey, and no more swarming need be feared as a general rule.

This is entirely unlike the conditions in the North and East, where the opening of the honey-flow brings with it wholesale swarming that is difficult to control.

A Long Distance Moving Experience

On the morning of March 19, we started for Llano county with 5 loads of bees and bee-keepers' supplies, a distance of about 65 miles. We had, on the day before, brought the bees from an out-apiary 14 miles away. They were to be moved to a small ranch we had bought in Llano county for a bee-ranch. We had made the usual preparations for giving the bees ventilation by putting screens over the tops of the hives and entrances. As the spring was late, and the bees had but little brood for this time of the year, we were congratulating ourselves on the way we had the bees fixed for their long journey over rather rough roads, and on common farm wagons with bolster springs.

On the morning of the above date we were up on time, and had all the teams harnessed and ready for the move. The boys were furnished with lighted smokers, veils, etc., and cautioned not to drive close to each other. I did not expect any accident from escaping bees, as I had closed and fixed the hives bee-tight myself, since I have had considerable experience in moving bees by wagon.

All went well until near noon, when we knew from the odor coming from the bees in the hives, as well as their actions, that they were getting too hot. The boys were instructed to drive into the shade as soon as possible, and as we stopped near a running creek of water for noon, we supplied all hands with buckets and tin cups with which to sprinkle and water the bees. The mercury had risen from 60 degrees in the morning to 96 degrees in the shade by this time. We would certainly have lost all the strongest colonies had it not been for the free use of water and the faithful helpers who applied it.

The next day was cloudy and most favorable for moving bees. All went well until the third day, when we encountered a severe change of weather. We were within 5 miles of our destination when an old-fashioned Texas norther struck us at 4 o'clock in the morning. We were soon up and dressed, and had a large camp fire burning, for with the norther came rain which turned into

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sleet later. Now, the shoe was on the other foot, as the saying goes, and we had to do what we could to protect the bees and the brood from chilling.

Our destination was reached while it was still cold and sleeting, and it continued the rest of that night and the next day. It gave us a good opportunity to open the hives after unloading without the bees flying and mixing. As soon as the sun came out during the next day, the bees came out in full force, gathering honey from the "agherita," or "wild currant," which was then at its best. Not a single colony was lost on this long move, and at this date the colonies are all booming, so that I am expecting to get a good honey crop from them, as they are favorably located. L. B. SMITH.

Rescue, Tex.

When to Put On Supers

The bee-keeper should devote much time to the study of his locality, the source of the honey-flows, and when they are to be expected, so that the supers may be put on the hives at the proper time. To put them on long before they are needed gives too much room for the welfare of the colonies; besides, the bees may destroy the foundation in them by gnawing it down. But to leave the supers off until they are actually needed often results in the colonies becoming crowded and getting the desire to swarm.

According to the old rule, the proper time to give supers was when the bees were adding bits of white wax to the upper part of the comb along the top-bars, but this is too late unless swarms are desired, as this indicates a crowded condition in the brood-chamber. It is better to put them on a little before the real honey-flow begins than even a day later.

Why Don't Bees Work in Supers?

This is a question that is often asked. The inexperienced bee-keeper expects that at a certain time all colonies, no matter what the circumstances or conditions may be, will begin to store honey in the supers. A colony may be so weak that it has all it can do to take care of the brood-chamber. Or it may be strong enough, but there may be room in the brood-chamber to be filled before storing elsewhere, for the bees prefer to work as near the brood-nest as possible. Many colonies hesitate to enter the supers even during the honey-flow, and with the brood-chamber filled full, and it becomes necessary to entice them by giving them partly-built combs of honey in the supers. After they have once begun work in them, other conditions being favorable, they will continue to do so as long as the honey-flow lasts.

The most practical way of getting such colonies started in the super, is to exchange their super for one from a colony that has already begun work nicely. It is not necessary to free these supers entirely of bees, but it must be certain that the queens are not in them when taken to other colonies. It is quite safe, however, to drive most of the bees out of the supers with smoke when the covers are lifted off, and the queen will leave the supers for the brood-chamber below. Then the supers, combs, bees and all are simply exchanged and set on the colonies that refused to work in theirs before. The bees brought with the supers in which they were already at work will be additional aid in continuing the work in them.

Often the reason why bees do not enter the supers is because there is no honey for them to store. Even if there is an abundance of bloom, there may be no nectar in it.

Meeting of the Texas Bee-Keepers' Association

The annual meeting of the Texas Bee-Keepers' Association will be held July 30, 31, and Aug 1 at College Station, Tex., as usual in connection with the meeting of the Texas Farmers' Congress, of which the Bee-Keepers' Association is an affiliated section. Preparations were completed several weeks ago for taking care of a large crowd, and the outlook for a large gathering is very promising. There has been prepared a variety on every program that will be rendered by each section and by the Congress sessions, so that all who have the pleasure of being able to attend will find entertainment worth while.

To those who are not acquainted with the work of the Texas Farmers' Congress, a trip to see the great things that this educational institution is doing for the agricultural interests of the Lone Star State would be worth while, especially since cheap railroad excursions prevail at that time. It is hoped that all of the many bee-keepers in this great State, who can do so, will be at the meeting to have "one big, old time," such as bee-keepers only know how to have.

[We are sorry that this notice reached us too late for the July number.—ED.]

CONTRIBUTED ARTICLES

Amount of Honey Used by a Colony in a Year

BY ADRIAN GETAZ.

(Continued from July Number.)

However, the known relations between the production of energy and the consumption or combustion of carbon show that this amount is not considerable. It must vary to some extent with the temperature.

Usually when the bees secrete wax in any quantity, they form a cluster. Some honey, more or less, sometimes none, according to the temperature, must be consumed to keep up the proper heat in the cluster. That should be included, for it would not have occurred in the absence of wax secretion.

Upon the whole, I think a ratio of about 4 pounds of honey to 1 of wax is the most correct of all those offered. That is a good ways from the 8 or 10 pounds of our text-books.

WAX PRODUCED.

We come now to a much more difficult point to ascertain. That is the actual quantity of wax produced by a colony during the season.

A writer, I think it was F. Greiner, said that the comb of a section of honey, foundation, capping and all is one ounce. Some others have put it as far down as half an ounce. I can not find the quotations just now. Suppose a working season of 100 days, and a yield of 50 pounds of comb, the average during the total time would be ¾ or ½ ounce daily.

If extracted honey is produced, only the cappings would be needed, but, on the other hand, the yield would be greater. It must be remembered, too, that owing to their extra thickness the cappings constitute a larger portion of the combs than one would at first think.

Assuming a production of 1500 young bees a day, it is easy to calculate that the necessary brood cappings would be the equivalent of both sides of 2 sections. Add to this the amount used for bits of comb here and there in the brood-nest, all the bur and brace combs, queen-cells, etc., and in case the colony has been shaken, ½ or 2 pounds for the reconstruction of the brood-nest, and the conclusion almost forces itself on the mind that the amount of wax produced every day can not be less than 2 ounces, and is probably more. That means a daily consumption of honey of at least another half pound.

When the weather is such that new wax can not be produced, the bees will use old wax to a certain extent, otherwise judging by the cappings and other scraps that they throw away, they will use only new wax.

BROOD-REARING.

How much honey is consumed by the bees to rear a pound of brood, or, rather, how much does the brood consume, including what may be lost during the preliminary partial digestion or preparation by the nurse bees, is the hardest nut to crack of all.

I can truthfully say that "I don't know." The only experiment in that line that I can find is one made by the Hon. R. L. Taylor, and is reported in the Bee-Keepers' Review for August, 1896. The comparison was made between artificial and natural swarms. These last, during the following 3 or 4 weeks, produced considerably more brood than the others. The principle is simply this: Suppose 2 colonies of equal force furnish at the end of the experiment, the first 8 pounds of brood and 4 pounds of honey, and the second 10 pounds of brood and no honey. It is evident that it took 4 pounds of honey to produce 2 pounds of brood.

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SECOND FIELD MEET OF EASTERN ILLLINOIS BEE-KEEPERS, HELD AT ST. ANNE, ILL., JULY 22, 1912. (See page 232.)

From left to right, top row:—Geo. Martin, I. E. Pyles, C. E. Woodington, Walter Sorensen, C. F. Timmon, G. F. Gamble, John Soucie, N. A. Timmon, Thos. Mayo, J. B. Burillette, A. L. Kildow. Center row, left to right:—Bert Sherill, H. S. Duby, Mrs. D. Lefeve, Mrs. Olive Duby, Mr. and Mrs. J. H. Roberts. Bottom row:—Edw. Manny, Walter Duby, Miss Lily Lefeve, Master Jim Shrontz

Taking into account the difference in strength of the colonies, and several other minor points, Taylor comes to the conclusion that one pound of brood consumes 2 pounds of honey to arrive at maturity.

In my opinion, that estimate must be too high. In the first place, the assumption was made that both sets of colonies gathered the same amount of honey in proportion to their strength. I don't see it that way. The colonies having the most brood must have gathered less than the others, from the fact that a larger proportion of their bees were occupied at home instead of going to the field. If these experiments are repeated, it should be with fed bees, or in some way that the actual consumption of honey can be ascertained.

Then the amount seems to me to be extravagant on its face. The larval food, at least for the workers, is half honey and half pollen and water. Hence, 2 pounds of honey would indicate a total of 4 pounds of food per pound of fully grown brood. The larvæ live, or, rather, are fed for 5 days. The first 2 days can be set aside, as these larvæ are then very small, and consume very little; that is, approximately.

The bulk of the food is consumed during the last 3 days, which would give 1⅓ pounds of food for one of brood, as the final weight. But a larva 3 days old is very small, and one of 4 days considerably less than one of 5. The growth in the 5th day is by far the largest. Upon the whole, the average size of the larva can not be more than ⅓ of the final size. The consequence is, that the brood must consume daily 4 times its own weight if Taylor's figures are correct; or, at least, 3 times if we correct for the loss that may occur in the stomachs of the nurse-bees, the neglect of the first 2 days' food, and a few other minor points.

This seems impossible. Nearly all the nitrogenous (flesh forming) part of the food is utilized. There is but little waste; the cast-off skins, the cocoons, and a slight amount voided by the bees after they emerge, that is all. Nothing is needed to keep up the warmth since the bees maintain the hive at the proper temperature, though there may be some doubt on this point. All the losses are water and carbon dioxide from the honey consumed to furnish the *energy* necessary to the growth of the body.

Suppose a daily production of 1500 young bees. Taylor's figures would give a daily consumption of ⅔ of a pound of honey for that purpose. I think we can cut this down to ½ pound.

FEEDING BACK.

Little information can be obtained from colonies which were fed back honey. The conditions for successful feeding back are:

1st. Very warm weather.

2d. Strong colonies.

3d. The brood-nest contracted and filled up completely at the beginning with brood and honey.

4th. Rapid feeding. The colonies that do not take large amounts of food must be discarded at once. As much as 15 pounds has been taken in one day.

As to the results, 4 pounds have been obtained from 5 of honey fed. But that is a very rare exception, and I think the late Mr. Hutchinson is the only one whoever obtained it. One pound out of 2, or 2 from 3, are generally obtained under good management. Rapid feeding means on an average of at least 8 pounds a day. This would give for the honey consumed by the bees something like 3 pounds daily. We have now to compare this with the condition of a colony under normal circumstances.

The *back-fed* colony is made strong, and is in most cases probably larger than an average one. On the other hand, the warm weather and the contraction of the brood-nest will decrease the daily consumption. But the production of wax is considerable. When 6, 8, or even more, sections are completed and capped every day, the extra wax required is very considerable. Furthermore, under the stimulus of a bountiful feeding and warm weather, the bees produce sometimes even more wax than they can use, and plaster it over the feeders, the sections and other available places. A deduction of what honey may be consumed for that extra production could be made, but it is unnecessary, and could be but an approximation at the best.

CONCLUSIONS.

We may take for the working season 100 days from the time the bees are taken out of the cellar to the end of the flow. The objection may be raised that during the first 2 or 3 weeks very ttle if any wax is produced, and the amount of brood startad is not considerable. That's true.

But judging by the rapidity with which the stores carried over disappear, even when nectar is coming in, a considerable amount of honey must be consumed in order to keep up the required temperature inside of the hive

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at that time of the year. I may add also, that the estimate of 1500 young bees per day is exceeded when the brood-rearing is at its best.

Concerning the half pound of honey consumed to keep up the temperature, keep the bees alive, etc., it seems to me too small. Divide half a pound by 20,000 or 30,000 bees, and the amount allotted to each one will look ridiculously inadequate.

The half pound for wax production, and that for brood-rearing, are rather too small than too large; so we may set the consumption of honey for the 100 days at something over 1½ pounds every day, say 160 or 170 pounds in all. After the flow comes 50 or 60 days during which very little work is done. The daily consumption must fall considerably, perhaps as low as ½ pound. We may guess at 30 or 35 pounds for that period. But it is a guess sure enough.

Then comes the winter to which we may allow 15 pounds of honey actually consumed; this may be too much in some cases and too little in others. Taking it all in all, the estimation of 200 pounds a year is rather below than above the mark for a good colony in ordinary circumstances.

Knoxville, Tenn.

Closing the Season

BY G. M. DOOLITTLE.

A correspondent writes that he has had considerable trouble in removing the section-honey at the close of the season, either from robber-bees getting the start of him when he is taking the honey from the hives, or from not getting the sections free of bees, or from both, and requests that I give the readers of the American Bee Journal some advice along that line.

There is no season of the year, unless it be in early spring, when robber-bees are likely to be so troublesome as immediately after the honey harvest. Up to this time the bees have been active in the field, bringing in nectar to a more or less extent every day. They are now kept from work, and are on the lookout for any sweets that may be exposed; hence, are very readily taught to become active robbers. This makes the removal of the honey from the different colonies in the bee-yard, at this period, a big undertaking for the novice. Often the veteran is caught unawares.

When once, by mismanagement, a lot of robbers have been educated to a new vocation, the apiarist has something quite unpleasant on hand. Success lies in *not educating*. Many are very careless at this point. Carelessly leaving the honey-room door open, leaving a frame or two containing honey outside of a hive, thinking "I will be back in a moment," a crack or crevice here and there about the supers, etc., where bees can get a start on stolen sweets, caused an unpleasantness about the apiary for some time to come, and especially at this time of the year, when we wish to work at taking off honey.

If thoroughness is used, so that no bees can get a load of stolen sweets, the bees will quiet down into contentment soon after nectar-gathering ceases. While waiting two or three days for this contentment to come on, prepare everything for the removal of the supers of section honey, so the same can be secure from robber-bees the moment they are off the hives. As a matter of course, there will be a greater or less number of bees that will adhere to the supers, unless the Porter bee-escapes are used, and even with them some bees will remain, unless we leave the supers on these escapes for several days. Therefore, it is always best to make some provision for the escape of the bees that are carried in with the supers, when they are taken to the honey-room.

As bees, in leaving these supers, will go to the window of the honey-room, and, when there, will always run toward the top of the window, there is little trouble with them. On the outside of the window frame nail a strip of wire-cloth, such as is used on windows and doors to keep flies out, allowing this wire cloth to extend a foot above the top of the window, keeping it out and away from the outside of the building, immediately above the center of the window ⅜ of an inch, and you will have a bee-escape at all times when the top sash of the window is lowered, by means of which the bees will go out into the open air, and from there home; while any robbers which may be attracted by the smell of the honey, will not think of going so far above the spot where the smell comes out, to find the only opening through which they could reach this coveted honey.

At least, after using such an arrangement for more than 30 years, I have never known of a single bee finding its way into the honey-room through it. No room in which honey is stored should be considered finished until it has such an escape on the outside of each window.

Having things in readiness for the removal of the supers, at your leisure raise the same on your bee-escape boards, preferably in the early morning, when these raised supers may be taken to the honey-room the next morning. If you have a spring wheelbarrow, you can take several of these supers to the honey-room at once. I consider such a wheelbarrow one of the most valuable assets about the apiary. By having what is known as a "robber-cloth" to cover the supers as soon as they are removed from the hive to the wheelbarrow, this wheelbarrow load can be protected from robber-bees sufficiently to allow work at removing the honey all day long, if necessary.

If you do not use bee-escape boards for the removal of section honey at the end of the season, procure two or more of the robber-cloths, using one for the wheelbarrow, and the other for driving the bees out of the supers. To best do this, with a clamp fasten one side of this cloth to the further side of the super, after the cover has been removed, allowing it to lie flat over the open tops of the sections. When ready, with your smoker in trim so it will give a large volume of smoke, raise the edge of the robber-cloth next to you, blowing in two or three good puffs of smoke, when you will "flop" the cloth up and down by a quick up and down motion of the hand while holding it, blowing in more smoke with every two or three flops, and almost before you know it, 99 out of every 100 bees will be driven from the sections to the brood-combs below, the bees often stampeding out at the entrance of the hive.

Now drop the smoker and cloth, and lift the supers from the hive to the wheelbarrow "instanter," before the bees "flock" back, which they will do almost as rapidly as they stampeded the other way. While I generally use the bee-escape boards, yet where this robber-cloth-smoking process is used, I get less mutilation of the sealing to the sections if there is a little unsealed honey in a super, than I do with the escapes. With the escapes, the bees never leave the supers until they fill themselves with honey, and if there are no unsealed cells containing honey, they are always sure to bite through the cappings of the sealed honey to get what they want before passing down through the escapes. But with the smoke and the robber-cloth-flopping plan, they are stampeded below before they even think of taking a particle of honey.

However, if you are too slow in getting off the supers, so that the bees will flock back again, the cappings of the cells will be torn far worse than they will where the escapes are used. Of course, the few bees which still remain in the supers, after using the smoke plan, will fill themselves with honey after the supers have reached the honey-room; but as there are so few left, it must be a more completely finished super than is generally found, not to give enough unsealed honey to fill these few bees. And I have never known bees to open sealed cells for honey as long as there is honey in unsealed cells to supply their needs for this filling.

Is 90 Percent of So-Called European Foul Brood Starved Brood?

BY A. L. KILDOW,
Illinois State Apiarian Inspector.

I noticed in a recent number of the American Bee Journal that Mr. McEvoy states that 90 percent of the so-called European foul brood is starved brood. I must take exception to that statement unless he qualifies it and says "for Canada." If he does that, I have nothing to say; but if it is meant for the whole country, I object so far as the State of Illinois is concerned.

I have been doing inspection work for three seasons, and I think I am fairly well posted as to bee-diseases, and am satisfied that I can tell one kind from the other at a glance. In the article Mr. McEvoy gives his diagnosis of European foul brood, and it is practically the same as mine. I have examined hundreds of colonies this season, and I find a very small amount of starved brood and a little pickled brood, but it is no trouble for me to tell the difference between starved brood and European foul brood. If Mr. McEvoy would just reverse his statement and

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say that 10 percent was starved brood and 90 percent European foul brood, I would not have a word to say, for that is the way we have found it in Illinois.

If an inexperienced man had made that statement instead of Mr. McEvoy, I would say that he was not posted, but just guessed at it.

Putnam, Ill.

Starved Brood and European Foul Brood in Canada

BY F. E. MILLEN,

Apiary Inspector for the Ottawa Valley.

I have read your correspondence on European foul brood, pickled and starved brood, by Mr. McEvoy and others. I think Mr. McEvoy makes statements that are extreme, and which cannot be verified. I refer to two:

First, "That 90 percent of the so-called European foul brood is starved brood."

Second, "That by keeping pure Italian bees, and giving them proper management, none of these kinds of dead brood will be found among them."

At one time it may have been true that 90 percent of the so-called European foul brood was starved brood, but Mr. McEvoy forgets that time and European foul brood do not stand still, and I feel sure that 95 percent of the so-called European foul brood in Ontario today is the genuine article.

Starved brood never possesses that sickening odor, neither does it have that greasy appearance so common to foul brood larvæ. Then, if the weather has been wet and cold, so that food has become scarce, one would look closer and make a more careful diagnosis than if the weather had been fine. Again, starved brood is cleaned out more quickly by the bees than is the dead brood from European foul brood. From the virulent nature of the disease, we can almost always find it in every colony in the yard, when once present, whereas starved brood would not be found in colonies with lots of stores. Then, too, the scales of European foul brood are smaller than those of starved brood; in fact, starved brood is scarcely ever left in the cells until it becomes a scale, as the bees begin cleaning it out the first fine day; whereas, with the European foul brood they sometimes leave the hive rather than clean out the diseased larvæ.

The reason why European foul brood sometimes disappears in a heavy honey-flow is that the nurse-bees do not touch any of the old stores, but feed the fresh honey, which is not so liable to be contaminated. Next season, if the old stores are fed, the disease makes its reappearance. This is why so many fail to cure the disease when they requeen, but do not remove stores.

Mr. McEvoy says that by keeping pure Italians, with proper management, *none* of these kinds of dead brood will be present. This is true of starved brood only, as by proper management the black bees can also be saved from getting starved brood; but if the spores of the disease of European foul brood are present, the Italians will surely show the disease, and, if not treated, in some cases will die out. It is true that by careful and continuous selection Italians will stand up better against the disease, but that they are not immune is plainly evident. I could take him to yards that were requeened as long as 4 years ago, and the bees are all pure Italians yet, and this season European foul brood is present.

While it is misleading to the beginner to state that Italians are *immune*, they should be told that though European foul brood may break out, if they will *constantly re-queen*, and that only from their best colonies and new blood, and keep none but the most vigorous, young Italian queens in their colonies, then they have done all they can. By careful watching they need never be wiped out by European foul brood, though a little of the disease will sometimes show up.

Mr. McEvoy's plan of removing diseased colonies to remote places to be treated is hardly practicable these days, as there are bees almost everywhere. It is not right or fair to other bee-keepers to have diseased bees pass through their district. All diseased colonies should be treated where they are as early as possible, and fed if necessary to preserve their existence.

Leonard, Ont.

Samples of Dead Brood

BY WM. M'EVOY.

When I wrote that 90 percent of the so-called European foul brood was nothing but starved brood, I had in mind the samples that came through the mail to me. I found starved brood in 9 samples out of 10 that were sent to me.

When I wrote that article it was to show the general condition or proportion of the different kinds of dead brood found, and not to dispute the findings of the great experts such as Messrs. N. E. France, W. D. Wright, N. D. West, Charles Stewart, A. L. Kildow, I. E. Pyles, or any of the inspectors. I forgot to mention Dr. C. C. Miller, a man that I greatly respect, I was not disputing anything he wrote.

Pickled brood should be called *starved brood*. It is about 30 years since I found the cause of the bees letting some of their brood starve. When on my rounds inspecting apiaries I always pointed out the difference between *well fed*, *half fed*, and *starved brood in the same comb*. I found more or less in every locality every spring, between fruit bloom and clover.

Woodburn, Ont.

Starved and Dead Brood

BY I. E. PYLES,

Assistant State Inspector of Illinois.

On page 148 of the American Bee Journal, Mr. McEvoy writes: "Please give it out that I say that 90 percent of the so-called European foul brood is starved brood." It makes no difference about the percent, whether it is 10 or 90. Of course, it could be verified, if true, by the department at Washington. But we all agree as to the description of European foul brood; such being the case, how can any one make a mistake and call starved brood European foul brood? Of course, I can readily understand how people who have had no experience will call any dead brood foul brood, but that those having experience should make a mistake of this kind is beyond my comprehension.

In starved brood the larvæ never turn yellow, and invariably the adult bees suck the juices away and throw out the skin of the larva, which is always white. In pickled brood the juice is never sucked out, because it is always sour. In starved brood there is scarcely any honey, and none unsealed in the hive, while in European foul brood it makes no difference as to the amount of honey.

I have read in convention reports that Mr. McEvoy said, in talking of pickled brood, that in most cases it was caused by starvation, and it is just possible that is what he meant instead of European foul brood, at least that is what I prefer to think he meant.

Putnam, Ill.

The Winter's Lesson

BY J. E. CRANE.

A letter from a prominent bee-keeper in Michigan tells of the loss of half or two-thirds of the bees of that State, and doubtless this is true to a considerable extent through the North, also in a large number of yards in this State (Vermont). But what often seems a misfortune may prove a blessing. The loss of colonies may mean the "survival of the fittest," or those best adapted to their environment. It gives the bee-keeper plenty of opportunity for an intelligent investigation of the whole subject.

As I go around in the springtime in the sharp, bracing air of the season, with a few early flowers just open, and look over the bees, how my enthusiasm rises, and the blood tingles to my finger tips as I discover some new fact, or learn how to better care for the tiny little creatures.

Even the finding of an occasional swarm that has died has its lesson, if I am only able to interpret aright the conditions that have caused the loss.

Doubtless the severity of the past winter has had much to do with these lessons, but I doubt if it is the primary cause. I have observed for many years that bees winter much better after a season of an abundant crop of honey, and poorly after a season when the flowers have yielded but little nectar, whether the winter is severe or otherwise.

It would seem extravagant to say that poor honey seasons are the cause of all our winter losses, and yet I have for many years been of the opinion that they were the main cause. The fact that many colonies wear themselves out, or, at least, weaken their vitality very rapidly searching for food when no honey, or, but little, is to be found, while others rear less brood during August and September than when honey is abundant in the fields or in the hives, and the quality of it often in such seasons inferior, has

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strengthened my belief that the cause of our losses often lies back of the winter, in the previous season.

With several yards of bees I have abundant proof, as it seems to me, that my conclusions are correct. I find this spring that our winter losses in a number of yards were almost in exact inverse proportion to the amount of honey gathered by each yard during last year. In one yard where a very fair crop of honey was gathered, our loss in wintering has not been any larger than usual—one colony out of 60—while two others were broken up from queenlessness. However, the colonies in this yard are not so strong as a year ago, showing that the severe weather had its effect, but not enough to be of any serious account. In other yards, where the yield of honey last year was the lightest, I find the percentage of loss the largest, amounting to about 35 percent. Where there was some honey, or a better yield, the loss has been lighter. The winter loss has been in almost exact proportion to the dearth of honey last season, and consequent loss of vitality, and number of bees and strength of colonies.

When the season is very poor bees swarm less, there is a very much larger proportion of old queens carried through, queens which are liable to fail—and many such do fail—causing the loss of the colony. A large number of our losses come from this cause.

What can be done to remedy the trouble? In poor seasons we neglect our bees, as they are not likely to swarm, and as little surplus is to be taken. This is a great mistake. Unless honey is sufficiently abundant the latter part of the season to keep them breeding freely, they should be fed sugar syrup early enough to give them an abundance of food, so they may rear a good supply of bees to withstand the cold.

Even with all our care the colonies are likely to be weaker than in years of plenty. Where bees are wintered out-of-doors they should be crowded onto a less number of combs so that a small colony can keep up the necessary warmth. If wintered in cellars, they should be kept a little warmer than in other years, or the weakest colonies carefully sorted and given the warmest place in the cellar. It would be well also to replace old queens with young queens of the season to prevent superseding of such queens during the winter and early spring.

Middlebury, Vt.

How Best Queen-Cells Can be Secured

BY DR. C. C. MILLER.

It is easy for the bee-keeper who runs for honey to understand that he should rear queens from his best stock, but in nine cases out of ten, he has an idea that the matter is too complicated for him to undertake. He reads about artificial cells and grafting into them larvæ from the best stock, but says, "That's not for me," or if he does undertake it his first trial is a failure, and he concludes the best thing for him to do is to depend upon swarm-cells. These will be good cells, yes, excellent, but they are likely to be from those colonies most given to swarming, and these are not the colonies that will pile up the most honey.

APIARY OF E. LEMAIRE, BASCO, ILL.

If he would only persevere he might succeed, and that success in getting queens from his best stock would repay him well for all his trouble. Yet it is not necessary to use artificial cells. The plan I use for rearing queens for myself requires nothing of the kind. And it gives as good queens as can be reared. I do not say it is the best plan for those who rear queens on a large scale to sell. But for the honey-producer who wishes to rear his own queens I have no hesitation in recommending it. I have reared hundreds of queens by what are considered the latest and most approved plans for queen-breeders; and so I think I am competent to judge, and I feel very sure that this simple plan is the best for me as a honey-producer. I will give it as briefly as possible.

Into an empty brood-frame, at a distance of 2 or 3 inches from each end, fasten a starter of foundation about 2 inches wide at the top, and coming down to a point within an inch or two of the bottom-bar. Put it in the hive containing your best queen. To avoid having it filled with drone-comb, take out of the hive, either for a few days or permanently, all but two frames of brood, and put your empty frame between these two. In a week or so you will find this frame half filled with beautiful virgin comb such as bees delight to use for queen-cells. It will contain young brood with an outer margin of eggs. Trim away with a sharp knife all the outer edge of comb which contains eggs, except, perhaps, a very few eggs next to the youngest brood. This, you will see, is very simple. Any bee-keeper can do it the first time trying, and it is all that is necessary to take the place of preparing artificial cells.

Now put this "queen-cell stuff," if I may thus call the prepared frame, into the middle of a very strong colony from which the queen has been removed. The bees will do the rest, and you will have as good cells as you can possibly have with any kind of artificial cells. You may think the bees will start "wild cells" on their own comb. They won't; at least never any to amount to anything, and, of course, you needn't use those. The soft, new comb with abundant room at the edge, for cells, is so much more to their taste that it has a practical monopoly of all the cells started. In about 10 days the sealed cells are ready to be cut out and used wherever desired.

Marengo, Ill.

[The front-page picture illustrates Dr. Miller's method described above. During the preparation and rearing of the queen-cells, in the picture, the weather was cool and rainy, and most unfavorable to queen-rearing. However, there were 39 cells built and sealed on both sides of this comb, 33 of which show in the half-tone, some of them very slightly. We have no doubt that 50 or more would be reared on such a comb in favorable circumstances.—EDITOR.]

How to Secure a Good Crop of Honey

BY A. C. ALLEN.

(This essay took first prize at the Wisconsin State Bee-Keepers' Association meeting in February, 1912.)

When this subject is mentioned, there naturally passes before our vision fragrant orchards of apple bloom, through which spring zephyrs play and robins sing. Pastures and meadows, white and pink with clover blossoms, and later on the buckwheat, golden-rod, hearts-ease, etc., with sunshine and showers, just at the right time to make it possible for the busy bee to secure the winter supply of sweets for herself and man.

This is pleasant to dwell upon, and while a few apiarists have land of their own on which to grow some of these nectar-yielding plants, in view of the fact that it is impossible for but a small percentage of us to have any control of

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this feature of the question, this will be devoted to that of which we can have almost absolute control, viz: of having a means of obtaining the nectar that will surely come stalking across the plains, some few days each season, which is strong colonies.

Working upon the rule that in "union there is strength," we must have colonies of say 80,000 bees and upwards, and the first requisite to this, is to have all colonies headed with a young and prolific queen when the bees go into winter quarters; this is imperative because of the uncertainty of introducing queens in the spring.

Second, the bees must have a good quality of winter stores and plenty; but right here let me say that for ease of work and best results, the hives do not need to contain as much stores as we formerly allowed them; an unecessary amount makes carrying into and out of the cellar a hard job. Formerly I wanted 30 pounds for 8-frame colonies, and 40 for the 10-frame size; but now I prefer 20 for the former and 25 or 30 for the latter.

What I am going to tell you now is not theory but from actual practice: Formerly I took the bees from the cellar quite late—they were left in about as long as they remained decently quiet. But I find of recent years that they seem to get into rather better shape to breed up rapidly if taken from the cellar so they can take several cleansing flights a few days before pollen is ready for them to gather.

As soon as possible after removal from the cellar the hives are wrapped with Niagara sheathing, which is light in color, and the toughest paper I know of, and will allow of removal several times each season, and will last 2 or 3 years. This should be of one piece laid on top of the hive and folded down on all sides, as it then forms a wrapping through which no heat can escape. A cord tied around near the bottom holds it in place, and over all is slipped a telescopic cover and the entrances made very small.

After they have had one or more good flights each colony is examined. Some may need contracting, stores may need to be equalized somewhat, unclean bottom-boards reversed so all will have sweet, clean homes to begin the new year. In all cases we should be sure that plenty of honey is close to where the brood-nest is forming, for cold spells will come, and we want none to starve by having to move over for feed.

With colonies thus protected, we may have no fears of chilled brood from any Wisconsin weather during the last half of March and on; therefore, we want breeding to commence at once. To start this with energy, I have found nothing equal to a comb of warm syrup put up close to the colony; this is done from one to three times, once each week, according to the season until pollen comes, when it is warm enough to put on the bottom feeders. For this I use small troughs containing a little excelsior placed and used the same as the Alexander feeder.

As soon as pollen begins to come in freely, very thin, warm sugar syrup, flavored with dark honey or washings from cappings, is fed each evening for a month, after which they are fed twice a week with thicker syrup, and about one or two quarts at a feed, being careful to discontinue this at the proper time, so none of it will find its way into the surplus when the honey-flow begins. A thick feed may be given towards the last if the weather is warm, and the bees can gather their own water. This is quite an object when one makes the feed at home and hauls it several miles to an out-yard.

A close watch is kept on the process of brood-rearing, and sealed honey is removed when it appears to be in the queen's way of egg-laying. When May first comes, or a little later if all is going well, I want no sealed honey in my hives. If a comb is found quite well filled at this time, it is removed from the hive, and if but little honey is found it is uncapped. Brood-rearing is going on at a very rapid pace, and we want nothing to obstruct the work. When working this plan the queens will lay right up to the sealed honey at tops and ends of the combs, and then the they jump to the next one, which, if it is entirely empty, is filled completely with eggs. This should be an eye-opener to any one, for we can at once see the folly of allowing so much honey to be in the hive.

In past years we have heard it urged time and again by the "fathers," that a big lot of honey in the hive made the bees feel "rich," and so we worked upon that plan, but could never get the results that we now do by this improved plan, and I am not alone in this. You see our bees are receiving just about enough for their daily needs, which stimulates the same as a slow honey-flow. When a good percentage of the colonies have seven combs of brood, we begin equalizing, and when all but the two outer combs are full of brood, I put full ones in their places, and these empty ones are moved toward the center, and soon every comb is full from top to bottom and from end to end. This will be at or a little before fruit-bloom, when the hive is raised up and a second story placed underneath and left a week or 10 days. Do not leave it there any longer than this, for the queens are slow to move down, and it is apt to induce the swarming impulse. At the end of 10 days reverse the hives, and in case of 8-frame bodies the queen is given the run of both stories until the clover flow starts, but with 10-frame hives she is confined to the lower story, for one seldom finds a queen that will feel crowded on 10 combs containing no honey.

If increase is desired, the strongest colonies may be divided soon after fruit-bloom, and one-half of them supplied with queens from the South, unless you prefer to rear your own.

Drone-comb is allowed in none but breeding colonies, which is quite an item in increasing the honey crop.

When the honey-flow starts, any of the most approved plans of swarm prevention may be practiced, but I prefer the Allen plan of which I told you two years ago.

For the man who does not wish to practice spring feeding, all other plans in this article will apply except that he must feed heavily in the fall.

Put this plan into practice my friends, and you will have more honey to sell with less labor and expense, than if you increased the number of your colonies and apiaries.

Portage, Wis.

"Because Of" or "in Spite Of?"

BY ARTHUR C. MILLER.

The most difficult thing to do when making experiments with bees, either of management or of apparatus, is to determine whether the results are *because of* what was done or *in spite of* the same. We are seized with the idea which, the longer it is cherished the better it appears. It is put into concrete form and applied. Excellent returns are secured and they are at once attributed to the application of the idea, but it is an even chance that the results were in spite of it.

As the inspectors go from apiary to apiary, this fact is daily brought home to them, and the wider one's travels, the more convincing the evidence. Two bee-keepers, in the same general environment, will use radically opposite systems and obtain equal results, and each will affirm with vehemence, that his results were wholly due to the method pursued by him.

The upward-ventilation - absorbent-cushion man will denounce most heartily the sealed-cover system, and the believer in the latter has no possible use for the advice of the man who does not believe in it. And both of them may be wrong. Possibly the results secured are in spite of their system, or are in no wise connected with it.

It may not be that we, as a class, deceive ourselves any more than the members of any other craft, but most certain it is that a vast number of us do not take the pains and trouble that we should to prove that the results secured, when using a particular piece of apparatus or following some set procedure, are due to that or are in spite of it.

Wherefore, we are constantly filling the columns of the bee-papers with long dissertations on the immense value of some plan or implement, and not only do we thereby use up costly space, but, perchance, if the writer be popular, have some influence or possess the faculty of convincing diction, a lot of the craft will follow the leader to their own cost. Not but what they may secure excellent results, but if the originator or exploiter had not been self-deceived, he would never have led them to make expensive, or, at least, troublesome changes which had no more to do with the result than to lead the bee-keeper to a little closer observation and care.

We are all experimenters with animals about which our knowledge is as yet really only fragmentary. As experimenters we should (or must), for our own sakes, as well as for those who follow, take the same pains which other experimenters in animal behavior take, and always accompany every experiment with an equal number of colonies treated as has been our previous custom, or leave them undisturbed. This procedure is called a "control," that is, "a check," something to compare with or measure by.

The greatest bee-keepers of the past,

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and of the present, universally follow Mr. Langstroth's fundamental rule to "keep your colonies strong." They differ only in their idea of "strong," but none of them have any use for "small" or "reduced" colonies at any time. That rule should be constantly in the mind of every honey-producer, and, furthermore, he should have the first and last words blazed in letters of fire, KEEP STRONG. When that rule is observed to the letter, and when the maintained strength is secured by natural, simple means, the value of particular apparatus or method suddenly disappears.

Select your apparatus to suit your *convenience*, and that only. The "strong" colonies will get the honey and store it for you if any is to be secured, regardless of all the "theories" on which your appliances are built. And the "strong" colony will winter "in spite of" all the ideas you have on the subject. Follow Langstroth's great rule, "KEEP your colonies STRONG," and you will soon be asking yourself the question, is it "Because of" or "In Spite of" any scheme under test that the results are as they are? Then you will begin to progress.

Providence, R. I.

Hints for Apiary Work

BY F. GREINER.

On account of my not producing very much extracted honey, I have not thought best to invest in capping-melters. I let the cappings drain in the roomy uncapping-trough, then wash them in water, using the sweet mixture either for feeding back or, if handier, for making vinegar; finally I melt them in the solar wax-extractor. The wax thus obtained is of the best quality, and no honey is lost or injured by overheating.

Very dry sections cannot be folded without a considerable amount of breakage; it has, therefore, been advised to dampen them by pouring water from a fine spout through the grooves of the sections before removing from the crates. Thus, a whole thousand are dampened, and have to be made up at one time, which is not always desirable; besides, after being thus treated, it would not be best to fill the section-holders with these damp sections at once. A little time has to be given to let them become dry. The wetting of sections in this wholesale manner has other bad effects. They lose their smoothness wherever water touches them, and often they do not fold perfectly square. The tension of the V-groove, diagonally opposed to the dovetailed corner, is not balanced by an equal tension by that last-named corner, and so the folded section stands diamond-shaped. Even after becoming dry again, the trouble, we find, has not disappeared. Diamond-shaped sections give us the least trouble with our wide-frame supers; with T-supers, when we are using such, they are simply horrible. Luckily, there is no need of moistening sections by pouring water on them. We keep ours in a basement and they seldom become so dry but that they may be folded without breakage. In a very dry time it may be necessary to wrap up a crate in a wet blanket for a day. I generally cover the whole with an oilcloth besides, to prevent evaporation. So treated, not one section need break in folding; the smooth finish is preserved; the grain of the timber in the grooves has not been raised to produce the diamond shape, and we may fold as few, or as many at a time, as we wish.

A hinged cover to a smoker has the disadvantage of being glued or stuck up with creosote, and if, after using it hard, it is left without first raising the cover slightly, it is sometimes, yes, very often, next to impossible to pry it loose without doing some damage. It is true, by heating the smoker, by holding the cover part over a burning newspaper, shavings or something of that sort, a process which melts the creosote, the implement may be opened and filled for lighting; but a better smoker is made which has a telescoping cover, and this works perfectly.

To prevent the bees from liberating a queen too quickly by eating out the candy, the latter is sometimes fortified by tacking a piece of pasteboard over it. This is usually effective, and too much so in some instances. I have found queens still in the cage after a week. It is my belief that queens are often injured by long confinement. We should eliminate imprisoning our queens entirely, and the one practical method is by rearing one's own queens and then uniting the nucleus containing the laying queen with the colony to be re-queened. Then there is a proper time for re-queening, and this time is *not* after the honey season is entirely over, although we see it thus advised. There can be no objections raised against replacing old or undesirable queens with *good*, ripe queen-cells from superior stock at this time, but it is not best to introduce queens at so late a date if it can be avoided. To keep the queens confined over 3 or 4 days is poor policy. Direct introduction is the best.

The most favorable time for queen introduction is when bees are very anxious to rear brood. We know from experience that bees accept a queen early in the spring, even when there is no honey to be had in the field, while late in the season, even with a fall flow, we have to be very cautious, and have to confine her majesty in some sort of cage for a time before liberating.

It has never appeared to me fair to sell comb honey by the case, on account of great variations in the net weight of honey that a case may contain, although each may contain the same number of boxes. I do not deny the desirability of such a course, nor do I deny that there may not be any more difference in section honey than there is in "eggs" that are sold the world over by the piece. Still, I have not yet met the dealer who will buy my honey in that way. I sell by weight, which is the only just way, fair to all parties concerned. My practice has been to balance each empty crate or case on the scales, then proceed to fill it and mark the net weight only on one corner. Some years I have tried to put an even number of pounds in each case. This year I thought it would save me a little extra work to crate the honey just as it came, and I marked the exact net weight to the *half*-pound on each. This proved a loss of five dollars to me, for when I received my check for the 150 cases of white honey, I found that the half-pounds had been thrown out. By changing a few heavier sections for lighter ones, or *vice versa*, the difference of a half-pound can be easily made, and I shall resort to my old practice in the future, viz: have an even number of pounds in my honey-cases.

Recently I melted a lot of propolis, or scrapings, accumulations from cleaning section-honey and wide frames. I obtained a number of pounds of very nice wax out of that lot, which, separated from the propolis, was dipped and poured off. It paid well for the trouble. Who wants to buy the propolis?

Naples, N. Y.

DR. MILLER'S ANSWERS

Send Questions either to the office of the American Bee Journal or direct to DR. C. C. MILLER, MARENGO, ILL.
He does NOT answer bee-keeping questions by mail.

Prevention of Swarming—Giving Bees Room Under the Brood-Chamber

1. Having a colony of bees not very strong, and a shallow super with only foundation, I propose to place this super under the present brood-chamber, put the queen down in it, with an excluder to keep her there; three weeks before the fall flow, which begins here, say about Sept. 1, I will reverse the position of the brood-chamber and super, putting the super on top, the queen below, and the excluder between. (This reversing could be done at any previous time should the super become in any sense crowded.) Queen-cells to be taken care of properly.

I expect, by these manipulations, to get the combs drawn in the super; to promote brood-rearing with the additional help of stimulative feeding, and incidentally to prevent swarming should there be any chance of that happening. Is this a practical plan?

2. I have a rousing big colony which has not given any signs of swarming, but has the brood-chamber filled with brood, a section super being on top. I place under the brood-chamber another hive-body with fully-drawn combs, and no excluder. How will this affect work in the super? Will it probably influence any to swarm? NEW JERSEY.

ANSWERS.—1. Yes; it is a variation of a plan given to prevent swarming in "Fifty Years Among the Bees." I may mention a chance for trouble in one respect. It may happen, especially if the colony be weak, that the bees will desert the queen, leaving her alone below the excluder. I don't know whether this has any tendency to make the bees swarm out. So it is a good plan to have at least a little brood in the lower story to hold both bees and queen.

2. The colony being very strong, there may be no immediate difference apparent in super-work, the colony being strong enough to do good work above and below. But it is a pretty safe guess that the bees

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will put a lot of honey into those drawn combs below the brood. At least my bees did. Then the brood-nest may continue above and the honey below. But that is not at all likely to continue for any length of time. The brood-nest is likely to work its way down into the lower story. Brood may continue to occupy both stories. More likely the lower story will become filled with brood, and the upper story become wholly, or, in part, filled with honey. Sometimes the central combs in each story will be filled with brood and the outer combs with honey.

Unless queen-cells are well under way when drawn combs are put under, there will likely be no inclination to swarm Even if queen-cells are started, if they are cut out they may not be started again.

Swarms Refusing to Stay in a Hive

Please tell me how to keep the bees of a swarm from swarming out again. I lost several swarms this summer by their swarming out. They were put in new hives that I bought 2 years ago. IOWA.

ANSWER.—Years ago it was more or less the practice to wash out the hives with this or that under the notion that certain odors made it attractive to the swarm put in it. Nowadays nothing is wanted but a clean hive. Your hives were, no doubt, all right. But it's a pretty safe guess that the bees were uncomfortable for all that. Either they were too warm or had too little air. Likely both. When you hive a swarm see that it has abundant ventilation. Give it as large an entrance as you can. If practicable it is a good plan to raise the hive an inch or so from the bottom-board by putting blocks under the corners. Shove the cover forward so as to make an opening of half an inch, or an inch, at the back end. After 2 or 3 days you can lessen the ventilation if you think best. The hive should be in a shady, airy place. If you cannot give shade in any other way, cut an armful of long grass, put it on the hive, lay 2 or 3 sticks of firewood on it to keep it from blowing way. Some make a practice of giving a frame of brood to the swarm. The bees think that it is such a good start toward housekeeping that they are unwilling to leave it without great provocation.

Bad Losses Partly Caused by Spring Dwindling

If you can tell what ails the bees this spring, please do so. I had 160 colonies, fall count. April 10 I had lost only 10 colonies, then they commenced to dwindle. The spring was very late, but I found only 2 colonies short of stores. As soon as the weather got warm they left the hives, and those that did not died in May. There was but little brood, and not enough bees to cover that little. I have now 30 colonies left, and one-half of them are so weak that if they live through they will do well. Last season was a poor honey season; no early flow, and none after Aug. 15; no late brood, and all old bees at the commencement of winter.

The hives had lots of honey in them, but we got but little in the supers. I melted 400 pounds of honey taken from the hives where the bees had died or left. I found none without honey except about 15 strong colonies; those I fed, and they are doing well now. Every one is in the same fix. One man with 30 colonies has one left; and another with 1000 has one-half left. The general loss is about 50 percent.

The bee-keepers' association met here the first of the month, and reported the loss as State wide, and I see by the Bee Journal that Wisconsin suffered, too, and California is also hit hard. Utah seems to have escaped. I think we will have to quit bee-keeping and try something not so uncertain. COLORADO.

ANSWER.—I don't know enough to say what the trouble was. It seems that the winter and spring losses were quite general, more general than at first supposed. A note from the office of the American Bee Journal accompanying your letter says: "Same conditions with some bees here. One man has 30 left of 160, spring count. Bad case of spring dwindling, we called it." That "30 left of 160" was worse than your loss, for the 160 was spring count, and your 160 was fall count. In my own locality it was a good deal worse. Aside from my own bees, I think I have heard of nothing less than 90 percent loss, and perhaps in most cases the loss was entire. Although my own loss was not so bad as that, it was the worst I have had in many a year. I put 114 colonies in the cellar—or had them put in—had 83 taken out, and in June had 64 left. That made the total loss nearly 45 percent. I try to excuse myself a little with the thought that my bees didn't have a fair chance. In the fall there was sickness practically in the family, ending with death, which kept me from giving the bees the attention they ought to have had. When they were taken out in the spring I was sick abed with the worst illness of 30 years. But I don't know how much better it would have been if I had had all the chance in the world. I suppose you have given a pretty good answer to your own question when you say your bees dwindled. It was a case of spring dwindling, and a pretty bad case, too. That leaves still the question why there should be such an unusual spring dwindling. And that's the hard question to answer. The winter was an unusually hard one. In this locality at least I never knew such a killing one. Hardy roses and other shrubs were killed outright, root and branch. I never before knew grass to be so badly killed. The severe winter was no doubt hard on the bees that were wintered outdoors. And it was also hard on bees wintered in cellars which are none too warm in ordinary winters. But it ought not to be bad in cellars like mine with a furnace, where the problem is to keep the cellar cool enough.

The principal trouble, I think, both with you and with me, dates farther back. The season, last year, was bad. Breeding stopped early, and this spring the proportion of very old bees was so large that they died off rapidly at the time when most needed. That left, in many cases, brood with not sufficient bees to cover it, and when that happens there are no bees to go a-field, the bees dwindle, become discouraged, and sometimes desert their hives, leaving a good stock of brood and stores—everything apparently necessary for their prosperity. In your case, no doubt, the severe winter aggravated the case. You may take comfort in thinking that the same thing may not occur again in the next 50 years.

BAD SPRING DWINDLING—30 COLONIES LEFT OF 160.

Italianizing Swarms—Making Increase

1. Page 335 of "Forty Years Among the Bees," headed, "Italianizing with Natural Swarming," is given a plan as follows: Call Italian colony A the strongst, B, C and D the next. When A swarms, hive the swarm and set it on the old stand, putting A in place of B, and B on a new stand, and so on. At the last you say, if you have ouly 5 or 6 colonies, the whole lot may be thus Italianized. Now, is it not a fact that the new swarms will only be Italians, and the old colonies will be the same as before the operation?

2. I have 3 colonies, and will call them 1, 2 and 3. No. 1 has 7 frames, and the comb is built so it cannot be removed; No. 2 is of the same stock, and has straight combs which can be removed; No. 3 is composed of black bees and is weak. I would like to increase from my 2 best colonies, and as I cannot find anything in my books to fit my case, how will this plan work: Remove the frames only in No. 2, then take half the brood from No. 2 and place it in a new hive, and set the new hive in place of No. 1, setting No. 1 on a new stand. Shall I leave the queen in the old colony, or give her to the new one? The idea of putting the new colony in place of No. 1 is to catch the flying force, as they would not be apt to keep any old bees from No. 1. Will the queenless half rear a queen? If this is not a good plan, what would you advise? MISSOURI.

ANSWERS.—1. Yes, the old colonies remain the same. It might have been more clearly written, but if you will notice the context you will see that the swarms are referred to, for immediately preceding it is said "each of your swarms will have for its queen a daughter of an Italian queen.

2. Yes your plan will work. Better leave the queen on the old stand, for if she is in the hive that is put on the stand of No. 1, there is some danger that she may be attacked by the returning fielders of No. 1. Be on the lookout 10 or more days after making the change, for it is possible that a swarm may issue with the first virgin that emerges.

Can You Destroy European Foul Brood and Save the Combs?

Tell us how to destroy European foul brood without destroying a lot of nice, straight combs. ILLINOIS.

ANSWER.—When I discovered European foul brood in my apiary, I melted up hundreds of beautiful worker-combs. If I had it to do over again I would try to save them. I have been blamed for encouraging anything of the kind, because in the hands of careless bee-keepers there is danger that the disease may be spread through the combs that are saved. But you'll promise to be very careful, won't you, if I tell you how I would do—how I have done? The first thing is to have the colony strong. Foul brood is not a great strengthener of colonies, and if it has proceeded to any great extent you will need to strengthen the colony by giving brood or young bees, or both, from healthy colonies, or by uniting diseased colonies. But, remember, *the colony must be strong*. The Alexander treatment requires the removal of the queen, and then 20 days later the giving of a ripe queen-cell or a virgin just hatched of best Italian stock. The bees do the rest. I *think* I have had just as good success without leaving the colony so long without a laying queen. So instead of waiting 20 days, give the colony a cell or a virgin just as soon as it will accept it after the removal of the queen.

Sometimes you may find only a single bad cell, or perhaps 8 or 10. In that case it may not be necessary to do anything. A week or two later you may find that the bees have cleaned out all bad brood and left nothing but healthy brood in the hive. But you may find the case worse than it was, although not yet a very bad case. If the queen is vigorous, and the colony appears prosperous, cage the queen and leave her in the hive. After a certain period let the queen out of the cage, and if your bees do as mine have done the disease will have disappeared in most cases. I say after a certain period. I

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think a week is long enough, but perhaps 10 days is better. You notice that I also say, "in most cases." Because in more cases than I like the disease has reappeared. But so it did in some cases when I brushed the bees upon foundation and melted the combs.

Queens Laying Drone-Eggs—Are they Old Queens?

What kind of a queen-bee is it that lays part drone and part worker eggs in worker-cells; is she an old queen, young, or not fertilized? I bought 50 queens, this spring, from one of the most popular queen-breeders in the South, and 3 of them lay part drone and part worker eggs in worker-cells, and one more laid all drone-eggs in worker-cells. I know what "A B C of Bee Culture" says, and I am sure it is right, but wish to see this answered in the American Bee Journal.

CALIFORNIA.

ANSWER.—An old, played-out queen may begin laying occasionally a drone-egg in a worker-cell, and gradually increase until she lays nothing but drone-eggs. But this is by no means always the case with old queens. Occasionally a young queen begins laying without being fertilized, and, of course, will lay only drone-eggs. Sometimes a yonng queen lays part drone-eggs in worker-cells, either because imperfectly fertilized or on account of some functional disability. Sometimes a young queen lays drone-eggs for a while, and then lays worker-eggs all right.

You do not say what kind of queens you bought, but buying as many as 50 at a time it is practically certain that you bought them as untested queens. That would rule out the chance of their being old queens, always supposing you bought from an honest man. An untested queen is generally shipped as soon as convenient after she begins to lay, and all that the breeder is supposed to know about her is that she is reared from a good mother, that she is physically perfect so far as appearances go, and that she has begun to lay. The purchaser takes his chances on whether she is purely mated or whether the eggs she lays in worker-cells will all produce worker-bees, unless, indeed, they are sold as warranted queens. Yet it is probably not often that so many as 4 out of 50 turn out bad.

Queen at the Entrance—What Was the Matter?

July 11, early in the morning, I went to my bee-yard. It was cloudy, and a few bees were flying out from hive No. 5. On the alighting-board I found a nice queen with one solitary bee beside her. She appeared weak, so I took her up and put her in at the entrance. The bees gathered around, but did not ball her. I saw them feeding her; they seemed glad to have her. Pretty soon she moved around, and in five minutes she went into the hive. She was a young queen. Bees are doing well; plenty of bees and honey. What was the matter? In all my readings, I never read of a case like this.

INDIANA.

ANSWER.—I don't know what the trouble was. It is among the possibilities that the colony swarmed the day before, and the queen, for some reason, was not able to go with the swarm, but remained over night outside. But in that case there ought to have been a number of bees with her. It is barely possible that the queen may have been from some other hive, and although received kindly at first was badly used after she got into the hive. Both those guesses are poor ones, but they're the best I have in stock.

REPORTS AND EXPERIENCES

Prospects Good for Next Year

There was considerable loss here from the severe cold winter, as some colonies perished from lack of food, while others could not reach the stores on account of a continuous cold spell.

There is not much white clover, as it was nearly all killed by last summer's drouth, but it is coming up nicely, and promises well for next year. Basswood bloomed more plentifully than it has for many years, so the bees stored considerable honey from that source. When basswood was in bloom there was considerable swarming.

The fall pasture may be good, as there is plenty of all kinds of weeds growing.

MAX ZAHNER, SR.

Lenexa, Kans., July 10.

Prospects in Western Illinois

On account of winter-killing of white clover, and a light rainfall in some localities, there is a scant flow of nectar. Many colonies are short of stores, and must be fed to carry them over to later bloom. The early, later bloom will be light unless we should have heavy rains. Bees must be looked after during this critical period.

Basco, Ill., June 20. WM. FINDLEY.

MR. J. W. STINE, OF SPERRY, IOWA, AND A PART OF HIS APIARY

Black Bees the Hardier Race

Some 20 years ago I lived here and had some 200 movable-frame hives, mostly with Italian bees, selling about 4000 pounds of honey one year. I left the bees here, and they became scattered throughout the community. Since then I have had a few bees in Polk, Atascosa and Duval counties, Tex.

This spring I am back here again, and have gathered up about 20 of my old hives, which are now filled with black bees. I bred and sold a good many Italian queens and some bees. A few pure-blood swarms absconded and took trees as domiciles. A few of my neighbors kept Italians then, but now I am unable to find even a cross-bred colony in all this, my old territory. Does this not almost prove that the blacks are the hardier race?

Almost exactly two-thirds of this season's new swarms have absconded. I got a swarm from a tree that was cut this week, and have heard of 3 more being found and cut; all blacks. Where are the Italians?

Spurger, Tex., June 27. GEO. MOTT.

Good Season in Ohio

This is the best season that this locality has seen for years; honey has been coming in like a flood. Clover has yielded an immense amount of nectar, and the basswood flow is very heavy. There is also a good prospect for a flow from sweet clover.

The honey-flow has been so heavy that we have to extract from the brood-chambers to let the queens have some place for their eggs. I never saw the brood-nests so honey-clogged before.

Bees are doing the best this summer that I ever saw, and I think that in spite of last winter's heavy loss, the majority of bee-keepers will have more bees this fall than they did last. J. C. MOSGROVE.

Medina, Ohio, July 8.

California Prospect Not Encouraging

The honey crop in this county is almost a complete failure this season. Everything looked promising in March for a good flow of honey, but owing to lack of sufficient rain to soak the ground to a lasting depth, we have had only enough to call it a surface moisture, and a few warm days dry this. The sage, on which we depend, withers very fast under such conditions. We have had about 20 days in which the bees gathered honey this season, while other seasons we would have at least 90 days.

W. F. HACKMANN.

Salinas City, Calif., June 18.

Honey Crop Short in Switzerland

The season in Switzerland is very poor. Up to June we had nothing but deficiencies. Many swarms, owing to the enormous populations in the hives, but no honey. With the large Dadant hives, I have always succeeded in preventing swarming, but this year there is no way of succeeding in this.

ULRICH GUBLER,
Editor of Bulletin D'Apiculture.

Belmont, Switzerland, June 10.

A Little Surplus Honey in Kansas

American foul brood has been rampant hereabouts. The farmer bee-keepers have lost about all; bee-moths killed them (?). The honey-crop is light here this year, white clover was killed out last year by dry, hot weather, but we will get some surplus.

J. F. VIGOR, M. D.

Pomona, Kan., June 20.

Good Reports from Ohio Valley

This section of the country is enjoying a very heavy honey-flow from white and sweet clover, both of which are abundant. Many colonies have already gathered more than 100 pounds. Reports from Kentucky and Tennessee are equally flattering. We look for a honey harvest equal to 1906.

THE FRED W. MUTH CO.

Cincinnati, Ohio, June 19.

American Bee Journal

Wants, Exchanges, Etc.

[Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.]

BEES AND QUEENS.

NUTMEG ITALIAN QUEENS, leather color, after June 1, $1.00. A. W. Yates, Hartford, Ct.

FOR SALE—20 strong colonies of Italian bees, equipped for extracting, at a bargain. B. Walker, 6002 28th St., Cicero, Ill.

FOR SALE — Untested Golden Italian Queens 50c each. J. F. Michael,
8A2t Winchester, Ind.

FRONT LINE Italian Queens by return mail at 75c each, 6 for $4.25, 12 for $8.00, 25 and up 60c each. J. B. Hollopeter, Pentz, Pa.

VIRGINIA QUEENS now ready. Untested 75c Tested $1.00. All dead ones replaced.
6A3t S. Click, Mt. Jackson' Va.

GOLDEN Italian Queens. Nuclei, and Full Colonies. See price-list in May number, page 131. Isaac F. Tillinghast, Factoryville, Pa.

GOLDEN QUEENS that produce 5 and 6 band bees. Untested, $1.00; Tested, $3.00.
Robert Inghram, Sycamore, Pa.

FOR SALE—Three-banded Italian Queens bred for honey, gentleness, and prolificness. One, $1.00; 6 for $5.00, Wm. S. Barnett,
7A4t Barnett, Va.

FOR SALE—50 colonies of Bees in Dovetailed hives, all in fine working order; 1½ story 8 and 10 Frame Hives. Address,
7A1t Louis Werner, Edwardsville, Ill.

MY SYSTEM — Union bee-hive and Queen. Will increase both your colonies and honey crop, and improve your stock, making bee-keeping a real pleasure. Cash orders $10.00.
3Atf Joe Egner, Box 552, Lavergne, Ill.

GOLDEN QUEENS that produce Golden Workers of the brightest kind. I will challenge the world on my Goldens and their honey-getting qualities. Price, $1.00 each; Tested, $2.00; Breeders, $5.00 and $10.
7A4t J. B. Brockwell, Barnett, Va.

QUEENS — Italians and Carniolans. Will exchange choice queens for bees by the pound, frame, or hive. Write, stating what you have, Frank M. Keith,
3Atf 83½ Florence St., Worcester, Mass.

NORTHERN BRED hardy Queens of Moore's strain of Italians, ready the last of June. Untested, $1.00 each; 6 for $5.00; 12 for $9.00. Orders filed and filled in turn. 6Atf
P. B. Ramer, Harmony, Minn.

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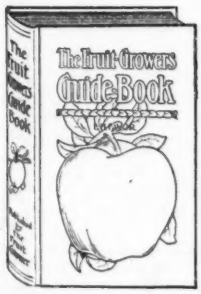

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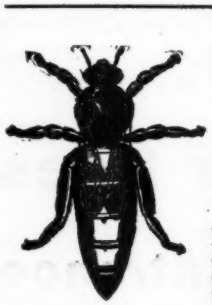

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ANOTHER reason is that we can serve you better now than three months hence. In a few weeks we will be putting up carload shipments for our dealers and distributing centers, and every effort in our big plant—the largest establishment in the world devoted to the manufacture of bee-supplies—will be directed to filling rush orders. You will be just as anxious for your goods as our other patrons, and will deserve and receive the same attention—no matter what the amount of your order may be, but

We can Serve you Better Now

and we want to make it worth your while to place an early order. Try this on a part of your list anyway. Saving at the rate of 12 percent per year ought to interest everybody.

We Manufacture Everything in Bee-Supplies

Get our 1912 catalog which gives descriptions, illustrations and prices on everything from bee-hives to bee-books, from frames to comb foundation. **Get this Catalog NOW.**

THE A. I. ROOT COMPANY,

213 Institute Place, Chicago, Illinois

R. W. BOYDEN, Mgr. **(Jeffrey Building)** **Tel. 1484 North.**

American Bee Journal

AQUASUN

The flavor of richest apple cider.
A table delicacy that has no equal.
A beverage that refreshes and invigorates.
The strongest health-germs in Nature.

Made from Honey & Water

In any kitchen, at any hour, at a cost of 2 to 4 cents per gallon. Process and right to make it, 25c. Circular Free. 5A12t

C. W. Dayton, Chatsworth, Calif.

Please mention Am. Bee Journal when writing.

CHOICE HOME-BRED

and Imported Stock.

Queens reared in Full Colonies.

Prices for July and After

One Tested Queen....	$1.10
" Select Tested....	1.30
" Breeding Queen..	1.85
" Untested queens	.75
" Comb nucleus	.80

Safe arrival guaranteed.

For description of each grade of Queens send for Free Catalog.

J. L. STRONG,

204 E. Logan St., Clarinda, Iowa.

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We Make a Specialty of Manufacturing

SECTIONS

They are the Finest in the Land—None Better.

Our Prices will make you smile. We want to mail OUR BEE-SUPPLY CATALOG to every bee-keeper in the land. It is FREE. Ask for it.

H. S. Duby. St. Anne, Ill., carries a full line of Our Goods, and sells them at our regular catalog prices.

AUG. LOTZ & CO.

Boyd, Wis.

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"Griggs Saves You Freight"

TOLEDO

FOR ME! Is Every Man's Guide Who Wishes Goods QUICK. BIG STOCK ROOT'S SUPPLIES.

Ready to ship day order is received Wholesale prices on Chick Feed, Beef Scraps, Grit, Oyster Shells, Etc. Honey and Beeswax wanted. Catalogue Free.

S. J. GRIGGS & CO.

24 N. Erie St., Toledo. Ohio

P-O-R-T-E-R

(Trade mark)

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SAVES { TIME / HONEY / MONEY } At All Dealers

Each, 15c.; Dozen, $1.65, postpaid.

If your Dealer does not keep them, order from Factory, with Complete Instructions.

R. & E. C. Porter, Mfrs.

Lewistown, Ill.

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Bee-Keepers' Supplies,

Berry Baskets, Crates, Etc.

Sold at Rock Bottom prices. From Factory to Consumer. Send for prices.

W. D. SOPER, Jackson, Mich.

323 to 325 Park Ave., on L. S. & M. S. R. R.

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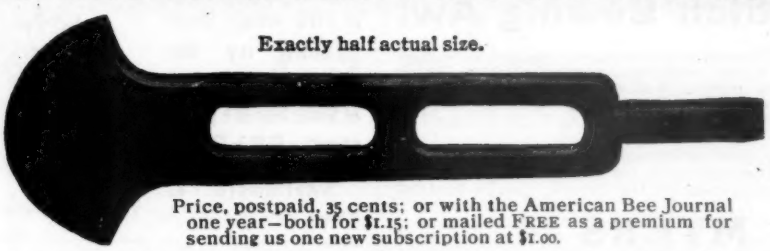
The Ideal Hive-Tool Free as a Premium

Exactly half actual size.



Price, postpaid, 35 cents; or with the American Bee Journal one year—both for $1.15; or mailed FREE as a premium for sending us one new subscription at $1.00.

This is a special tool invented by a Minnesota bee-keeper, adapted for prying up supers, and for general hive and other work around the apiary. Made of malleable iron, 8½ inches long. The middle part is 1 1-16 inches wide, and 7-32 thick. The smaller end is 1⅞ inches long, ½ inch wide, and 7-32 thick, ending like a screwdriver. The larger end is wedge-shaped, having a fairly sharp, semi-circular edge, making it almost perfect for prying up hive-covers, supers, etc., as it does not mar the wood. Dr. C. C. Miller, who has used this tool since 1903, says: "I think as much of the tool as ever."

50,000 Copies "Honey as a Health-Food" To Help Increase the Demand for Honey

We have had printed an edition of over 50,000 copies of the 16-page pamphlet on Honey as a Health-Food." It is envelope size, and just the thing to create a local demand for honey.

The first part of it contains a short article on "Honey as Food," written by Dr. C. C. Miller. It tells where to keep honey, how to liquefy it, etc. The last is devoted to "Honey Cooking Recipes" and "Remedies Using Honey." It should be widely circulated by those selling honey. The more the people are educated on the value and uses of honey as a food, the more honey they will buy.

Prices, prepaid—Sample copy for a 2-cent stamp: 50 copies for 90 cents; 100 copies for $1.50; 250 copies for $3.00; 500 for $5.00; or 1000 for $9.00. Your business card printed free at the bottom of front page on all orders for 100 or more copies.

Address all orders to

American Bee Journal, Hamilton, Illinois.

3-BAND ITALIAN and GOLDEN QUEENS

FOR SALE—All Queens bred from improved long-tongued Red Clover stock, as good honey gatherers as money can buy. Reared by the Doolittle or Miller plan. One untested Queen, 75 cts.; 12 for $7.50; 50 for $25.00; 100 to 500, $45.00 per 100.

One Tested Queen, $1.50; 12 for $15.00. No nuclei or worker-bees for sale. No brood-disease in my bees. Safe arrival guarranteed.

6Atf **J. B. ALEXANDER, Cato, Ark.**

Mott's Strain of Italians—

Also Carniolans

10-page Descriptive List free. Untested, 75c each; $7.50 per doz. Natural R. C. Golden from Imported Stock, Sel. Untested, 90c each; Tested, $1.50. Bees by pound and Nuclei. Leaflets, "How to Introduce Queens," 15c each; on "Increase," 15c, or both for 25c.

E. E. MOTT, Glenwood, Mich.

Italian Breeding Queens

at a bargain. I am offering just a few of my very finest breeders at $2.50 each while they last. Untested queens, $1.00; Select Untested $1.25. 6Atf

H. A. JETT, Queen-Breeder, Brooksville, Ky.

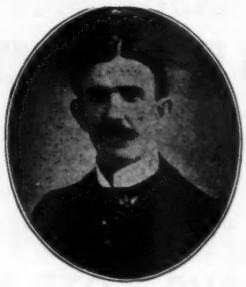
Have You Bees for Sale?

Owing to winter losses there is a considerable demand in the country for colonies of bees. Those having bees for sale should write at once to the American Bee Journal, Hamilton, Illinois.

American Bee Journal

"If goods are wanted quick, send to Pouder."

Bee-Supplies



Standard hives with latest improvements, Danzenbaker Hives, Sections, Foundation, Extractors, Smokers; in fact, everything used about the bees. My equipment, my stock of goods, the quality of my goods and my shipping facilities can not be excelled.

PAPER HONEY-JARS

Sample Mailed Free

For extracted honey. Made of heavy paper and paraffine coated, with tight seal. Every honey-producer will be interested. A descriptive circular free. Finest white clover honey on hand at all times. I buy beeswax. Catalog of supplies free.

WALTER S. POUDER, Indianapolis, Ind.

859 Massachusetts Avenue.

You Can Have the Cash

For your Comb & Extracted Honey or Beeswax, if you will send it to

WESTERN HONEY PRODUCERS, 520 West 7th Street., Sioux City, Iowa

Let them render your old combs into wax.

Protection Hives

The best and lowest-priced double-walled hive on the market. This hive has ⅞ material in the outer-wall, and is not cheaply constructed of ⅜ material, as some other hives on the market. Packing or dead-air space, as you prefer. Remember, winter is approaching. get your bees into comfortable quarters before it is here. Send for a catalog.

A. G. WOODMAN CO., Grand Rapids, Mich.

Myers Famous Lockstitch Sewing Awl

Is designed particularly for farmers' use, but it will be found a time-saver and money-saver in nearly every household. It is not a novelty, but a practical hand-sewing machine for repairing shoes, harness, belts, carpets, rugs, tents, awnings, canvas of all kinds, gloves, mittens, saddles, etc.; you can also tie comforts. The Awl proper is grooved to contain the thread or waxed end, and the point being diamond shape will go through the thickest of leather, green or dry, any thickness.

The "Myers Awl" can be used with either straight or curved needle, both of which come with the outfit, and veterinarians will find it indispensable for sewing up wire cuts in stock. The "Myers Lock-Stitch Sewing Awl" is a necessity for the people; can be carried

in pocket or tool chest; nothing to lose, always ready to mend a rip or tear. Better than rivets because it is portable. Can be carried in mower or harvester tool-box, threshing kit, or anywhere. If you save one trip to town for mending, you are money ahead. Every farmer needs one, every man who teams needs one. It is the most practical hand-sewing machine for actual use ever devised. Put up with straight and curved needles, waxed thread, illustrated book of directions, and everything ready for use.

Our Special Offers of this Famous Sewing Awl.

We mail the MYERS LOCK-STITCH SEWING AWL for $1.00; or club it with the American Bee Journal for one year—both for only $1.60; or we will mail the AWL *free* as a premium for sending us only *Two New* Subscriptions to the American Bee Journal for one year, with $2.00. Surely here is an article that will be very useful in every home. Address all orders to—

American Bee Journal, Hamilton, Illinois.

Famous Queens!

From Improved Stock.

The Best That Money Can Buy

Not inclined to swarm, and as for Honey-Gathering they have few equals.

Three-band, Golden, and Carniolans—bred in separate yards; ready March 20th. Untested, $1.00; 6 for $5; 12 for $9. Tested, $1.50; 6 for $8; 12 for $15.00. Breeders of either strain, $5.00.

Nuclei, with Untested Queens—1-frame, $2.50; six 1-frame, $15; 2-frame, $3.50; six 2-fr. $20.40.

Nuclei with Tested Queens—1-frame, $3.00; six 1-frame, $17.40; 2-frame, $4.00; six 2-frame, $23.40.

Our Queens and Drones are all reared from the Best Select Queens, which should be so with the Drones as well as the Queens.

We guarantee safe arrival and satisfaction.

D. E. BROTHERS,

2A9t **Jacksonville, Ark.**

Please mention Am. Bee Journal when writing.

BARNES' Foot-Power Machinery

Read what J. I. PARENT, of Charlton, N. Y., says: "We cut with one of your Combined Machines, last winter. 50 chaff hives with 7-in. cap, 100 honey-racks, 500 brood-frames, 2,000 honey-boxes, and a great deal of other work. This winter we have double the amount of bee-hives, etc., to make, and we expect to do it with this Saw. It will do all you say it will." Catalog and price-list free.

Address, W. F. & JOHN BARNES, 995 Ruby St., Rockford, Ill.

Please mention Am. Bee Journal when writing

If YOU want them YELLOW try the GENTLE strains of of Swarthmore pedigreed GOLDEN QUEENS.

Swarthmore, Pa.

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EVERY BEE-KEEPER KNOWS

The Worth of A Good Queen

Knows the worth of a good strain of bees and also knows how worthless is a poor queen and inferior bees. Try our strain of three-banded Italians, they will not disappoint you. Tested queen, $1.00 each; Untested, 75c; $7.00 per doz. No disease. Send for price-list. 6Atf

J. W. K. SHAW & CO.,

Loreauville, Iberia Parish, La.

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English Honey-Spoon.

This fine 90c Honey-Spoon and the American Bee Journal for one year—both for only $1.75. Send all orders to the American Bee Journal, Hamilton, Ill.

Please mention Am. Bee Journal when writing.

American Bee Journal

HONEY AND BEESWAX

CHICAGO, July 15.—Some of the yield of 1912 has appeared on the market. The A No. 1 grade, or what is usually spoken of as well-filled sections of white honey, has brought 18c per lb.; No. 1 has sold at 17c. All receipts have been taken readily up to this time. The quality of the honey is better than any that has appeared on the market since 1908, and we are looking forward to a steady market of much larger volume than we have had for the past three years. Some extracted has also come and sold at from 9@10c per lb. for white, and 7@8c for the amber. Beeswax remains steady at from 30@32c per lb., according to color and cleanliness. R. A. BURNETT & Co.

KANSAS CITY, MO., July 15.—The new comb honey is arriving on the market. No. 1 white is selling at $3.50 per case of 24 sections. Last year's extracted is selling at 7@7½c for amber; 8@8½c for white. Beeswax at 25@28c a pound. C. C. CLEMONS PRODUCE CO

INDIANAPOLIS, July 15. — New extracted honey of finest quality is now moving and selling at 10½@12c per lb. in 5-gallon cans, according to quality. New comb honey not yet moving, and considerable old crop still on the market at sacrifice prices. Beeswax is in good demand, and producers are being paid 30c per pound. WALTER S. POUDER.

CINCINNATI, July 15.—At this writing we have received several shipments of new comb honey However, owing to the heavy crop reported everywhere, also noting that several cities have unsold comb honey from last year, the demand is not up to our expectations by far. For this reason, conditions must be looked into, and a range of prices is necessary in order to open up the season and enliven the buyers.

The little comb honey that is moving we are selling at 13@16c a lb., and fancy extracted honey at 8½@10c a lb., according to quality and quantity purchased. Amber honey in barrels we are selling at from 6½@7½c a lb. The above are selling prices. For strictly choice, bright, yellow beeswax we are paying 28c a lb. in cash or 30c a lb. in trade. THE FRED W. MUTH CO.

SAN FRANCISCO, July 15.—Comb honey, 15@16c for fancy; No. 1, 14@15c; water-white extracted, 9@9½c; light amber, 8½9c; amber, 7½@8c; lower grades, 5@6c. Beeswax, 27@28c for nice, yellow wax, and 23@26c for darker grades.

Very little comb honey coming in, and is taken up as soon as it arrives. Extracted honey is very slow in arriving, and we do not look for very heavy shipments until next month. The early hot spell in the month of June dried up the sage-bush, and can look for little honey from that source.

J. C. FROHLIGER.

BOSTON, July 16.—Fancy and No. 1 white comb honey, 17@18c per lb. White extracted, 10@11c. Beeswax, 30c. BLAKE-LEE CO.

CINCINNATI, July 17.—There is still some old comb honey in the market, and with very little demand. New comb honey has not yet arrived, and price will be lower than last season, as there is a good crop in general. Water-white extracted honey in 60-pound cans is selling from 9@9½c, according to quantity. Light amber in barrels from 6½@7½c; in cans, from 8@8½c. Beeswax is selling at $33 per 100 pounds.

The above are our selling prices, not what we are paying. C. H. W. WEBER & CO.

DENVER, July 16.—Strictly new crop of comb honey brings $3.60 per case of 24 sections in a jobbing way. White extracted, 9c per lb.; light amber, 8c; strained, 6¾@7½c. We pay 26c in cash and 28c in trade for clean, yellow beeswax delivered here.

THE COLO. HONEY-PRODUCERS' ASS'N.
F. Rauchfuss, *Mgr.*

SAN FRANCISCO, July 18.—Comb honey, 15@16c per lb. The market is very short, and quantities are limited. Water-white extracted, 8½@9c per lb.; light amber, 7½@8c per lb.; amber, 6½@7c per lb.; lower grades, 4½@6c. Beeswax, 26@30c for yellow; 24@26c for darker grades. J. C. FROHLIGER.

NEW YORK, July 18.—There is no new crop of New York State or near-by comb honey on the market as yet, and we do not expect to have any until in about 10 days or 2 weeks. From reports we have so far received, it is evident that a good, fair crop of white clover has been gathered with probably a crop of basswood to follow if weather is favorable. There are no prices established as yet, and probably will not be for 2 weeks to come.

Extracted honey is in fair demand, even in spite of the fact that there will be none or very little white sage in California. We think there will be enough of white clover and basswood in the East and Middle West to offset the shortage of sage in California. No fixed values are established for the new crop of clover and basswood and others, but we should think that prices will rule about the same as last year, at least early in the season. Nothing can be said as yet as to the buckwheat crop, but we learned that quite large fields have been sown, and with favorable weather, see no reason why a good crop should not be produced. Beeswax is steady at from 30@31C. HILDRETH & SEGELKEN.

Special Delivery

During this month we shall double our usual efforts in points of delivery and service. Early indications not having been most favorable, it is possible many bee-keepers will not have laid in a sufficient stock of supplies, such as sections and foundation, for the clover and basswood crop this month. We are prepared to make up for this oversight by having a large stock of both sections and foundation on hand for instant delivery. We carry nothing but the Root make, which insures the best quality of everything. We sell at factory prices, thereby insuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to bee-keepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

HONEY AND BEESWAX

If you haven't made arrangements for the disposition of your honey and wax for this season, consult us. We buy both in large quantities, and can assure you of fair and courteous treatment, and a good price for your crop.

Shipping-Cases.

To sell your crop to the best advantage it must be well put up in attractive style. We have shipping-cases that answer every requirement of looks and utility. Small producers who sell their crops locally will be interested in the cartons in which comb honey is put up to sell to the fancy customers at top-notch prices. We have honey-cans, too, in cases for those who produce extracted honey. In fact, there isn't anything we don't have that the bee-keeper needs, either to produce his crop or help to sell it.

C. H. W. WEBER & CO.

2146 Central Avenue.

CINCINNATI, - - - - - - - OHIO.

25 TWENTY-FIVE PRIZES 25

For the best pictures of bees, bee-appliances and bee-scenes sent in before November 1, 1912

First Prize, Cash . .	$25.00
Second . . .	10.00
Third . . .	5.00
Fourth . . .	5.00
Fifth . . .	5.00

6th to 25th each one copy of "Langstroth on the Honey-Bee," or in case you have this we will substitute any other standard work on bees

Restrictions:—All pictures to be clear and of good print, and accompanied by at least a short description. We reserve the right to use any and all pictures sent in. No picture will be accepted which has already been used in publication.

Any size picture will do. Send in your pictures now, or take them now and send them in before the date mentioned above.

For every picture we use, even if it does NOT come in the prizes, we will give a premium of some sort

It is our aim to increase the value the American Bee Journal, and we must have good pictures and plenty of them. Remember, our magazine is a National bee-paper

THE AMERICAN BEE JOURNAL

Hamilton, Hancock Co., Illinois